THE VASCULAR FLORA OF THE CHUNKY RIVER (MISSISSIPPI)

Lucas C. Majure[1]

Department of Biological Sciences
Mississippi State University, P. O. Box GY
Mississippi State, Mississippi 39762, U.S.A.
lcm44@msstate.edu

ABSTRACT

A floristic survey of a portion of the Chunky River, situated in east-central Mississippi (SE USA), was undertaken to determine the level of species richness within an area recently set aside as a scenic stream of Mississippi. Rare, uncommon, and disjunct species' populations were investigated and quantified. Invasive and exotic species were evaluated within the habitats in which they were found to subjectively determine possible deleterious effects that could be observed through their possible expansion. A total of 805 taxa were recorded (including species, infraspecific taxa and 1 hybrid), encompassing 422 genera and 140 families. The families containing the highest number of taxa were: Poaceae (120), Asteraceae (83), Cyperaceae (80), and Fabaceae (56). Nine tracking list species, according to the Mississippi Natural Heritage Program, were encountered which include: *Callirhoe triangulata*, *Carex tenax, Clematis glaucophylla, Ilex montana, Panax quinquefolius*, *Rhapidophyllum hystrix, Rhynchospora globularis* var. *pinetorum*, *Schisandra glabra*, and *Staphylea trifolia*. Ten of the state's watch list species, *Carex picta*, *Dichanthelium erectifolium*, *Eleocharis baldwinii, Fuirena pumila, Oxalis grandis, Panicum brachyanthum*, *Ptelea trifoliata*, *Rhynchospora mixta, Rhynchospora scirpoides* and *Tridens carolinianus,* also were found. Thirteen new county records were located for Clarke County, 272 new county records were located for Lauderdale County, and 56 new county records were found for Newton County. *Carex dasycarpa* was collected representing the first specimen of this species found within the state of Mississippi in 112 years and 2 new county records. In total, 79 exotic/invasive species were found during this study.

RESUMEN

Se hizo una investigación florística de una porción del Río Chunky que queda en el centro este del estado de Mississippi (sureste de los EE.UU.) para determinar el nivel de riqueza de especies en una área apenas designado como un arroyo escénico de Mississippi. Fueron investigadas y cuantificadas poblaciones de especies raras, no comunes y disjuntas. Fueron evaluadas activamente especies exóticas e invasoras en los hábitats donde fueron encontradas para averiguar subjetivamente efectos nocivos que podrían observarse por su probable expansión. Un total de 805 taxa fueron citados (se incluyen especies, taxa infraespecificos, y un híbrido) abarcando 422 géneros y 140 familias. Las familias que contienen el mayor número de taxa fueron las: Poaceae (120), Asteraceae (83), Cyperaceae (80) y las Fabaceae (56). Nueve especies de la lista de plantas raras, según el programa de Patrimonio Natural de MS, fueron encontradas entre las que se incluyen: *Callirhoe triangulata, Carex tenax, Clematis glaucophylla, Ilex montana, Panax quinquefolia, Rapidophyllum hystrix, Rhynchospora globularis* var. *pinetorum*, *Schisandra glabra* y *Staphylea trifolia*. Se encontraron diez especies de la lista de plantas en peligro por ser raras: *Carex picta, Eleocharis baldwinii, Fuirena pumila, Dichanthelium erectifolium, Oxalis grandis, Panicum brachyanthum, Ptelea trifoliata, Rhynchospora mixta, Rhynchospora scirpoides*, y *Tridens carolinianus*. Se encontraron 13 nuevos citas de especies para el condado Clarke, 272 para el condado Lauderdale, y 56 para el condado Newton. Se colectó *Carex dasycarpa* por primera vez en el estado de MS desde hace 112 años y se representan dos nuevas citas del condado. En total, 79 especies exóticas/invasoras fueron colectadas durante este estudio.

INTRODUCTION

Historical Significance

Although the name Chunky sounds as if it pertains to a derogatory term, it is actually the English derivative of a name used for a game played by the Choctaw Indians called "Chunka" at Chunky Shoals (Breiger 1997), where Boyette's Fish Camp sits along the Chunky River. The early Native Americans heavily used this area for its stone. The Tallahatta Formation, located throughout the extent of the Chunky River area that was surveyed, contains an easily fracturable rock known as tallahatta quartzite (Lowe 1915). This material (a combination of quartz sand and glauconite solidified by silica) is capable of forming concoidial fractures, which lends the material useful for making highly sharpened, well-crafted, stone tools. This stone, which can be found throughout certain parts of the river where it outcrops, was mined by the aboriginal peoples of this area for thousands of years. The east-central part of Mississippi therefore became an area of heavy trade and resource availability for the Native Americans throughout parts of the southeast. This is evident

[1]Current address: Florida Museum of Natural History, University of Florida, P.O. Box 117800, Gainesville, Florida 32611, U.S.A.; lmajure@ufl.edu

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by tallahatta quartzite artifacts that are found around many parts of the southeast. Also, stones from other regions (e.g., Fort Payne Chert from Tennessee) eventually made their way to the Chunky River region through trade (McGahey et al. 1992). Tallahatta quartzite is still used by many modern-day flintknappers (Majure pers. exp.).

Stuckey's Bridge is an important historical structure located along a portion of the survey area in Lauderdale County (Fig. 1). It was built by the Virginia Bridge and Iron Company in 1901 and was placed on the National Register for Historic Places in 1988 (Historic Bridges of the United States 2006). The man for which it is named is said to have owned a hotel near the bridge and would murder patrons for money and other valuables, then would bury their bodies along the banks of the Chunky River. After local people discovered what was happening, "Stuckey" was hung from the bridge. His spirit is said to still haunt the bridge (local legend).

Dunn's Falls is another area of historical significance located along the Chunky River (Fig. 1). This was the state's second natural area, developed in 1981. A total of 27.9 ha around the mill were bought by the Mississippi Wildlife Heritage Committee, as well as a 4.05 ha easement (Anonymous 1981;, Mississippi Natural Heritage Program 2002). Dunn's Falls was originally owned by Irish immigrant John Dunn who settled there in 1854 to establish a cotton mill. This soon was overtaken by the confederate government after the onset of the Civil War. The mill was then used to make blankets, hats, and knives for the Confederate Army. After the war, the mill was used to make flour, corn meal, hats, and money. Eventually, the mill was reclaimed by the forces of nature and carried off by the river. The mill is now represented by an 1857 Carroll-Richardson gristmill and water wheel taken from Cave Springs, Georgia (Pat Harrison Waterway District 2002).

Survey Significance

The Chunky River is important in that it forms part of the upper Pascagoula River System, which is "the last unimpeded major river system in the lower 48 states." It forms, along with Okatibbe Creek, a "sub-basin" of the overall Pascagoula River basin. The Pascagoula River Basin drains about 15,446.4 km of land. The system therefore is important in providing nutrients and sediments necessary for salt marsh stability (8,498.4 hectares of coastal marsh exist within the basin), which then "feed" the Mississippi Sound estuary (Mississippi Department of Environmental Quality 2001).

In 2003 the Mississippi Legislature designated the Chunky River as a scenic stream under the Mississippi Scenic Streams Stewardship Program supported by the Mississippi Department of Wildlife Fisheries and Parks (Andrew Whitehurst Mississippi Museum of Natural Science pers. comm.). However, before a river can be evaluated for nomination as a scenic stream, there are several requirements that it must meet (Andrew Whitehurst Mississippi Museum of Natural Science pers. comm.). First and foremost, any river system under scrutiny has to be on the State of Mississippi's list of "Public Waters." It then has to pass at least one of five prerequisites:

Listed as a stream recreational area in a publication by a government agency, or by a statewide conservation group, professional association or recreational organization.

Traverses or is adjacent to a state or national park, forest, refuge, wildlife management area, monument or other major public land.

Exhibits existing or potential use for recreational boating (motorized boating, rowing, canoeing, kayaking or tubing).

Possess accessible unique scenic or historical sites.

Supports plants and/or animals that are unique or of special concern

Once one of these requirements is met, the proposed area is subjected to an evaluation through a series of criteria (Assessment Criteria for Mississippi's Scenic Streams Stewardship Program 2002). These criteria are composed of biological, physical, human interaction and historical elements. As a result of the high scoring of the Chunky River through several areas of testing (Assessment Criteria for Mississippi's Scenic Streams Stewardship Program 2002), the House Bill 952 "designated a certain portion of Chunky Creek in Newton County and the Chunky River in Newton, Lauderdale and Clarke counties, as eligible for nomination to the State Scenic Streams Stewardship Program" (Mississippi Legislature 2002).

Of all the related elements subjected to testing for the proposed nomination of the Chunky River, the

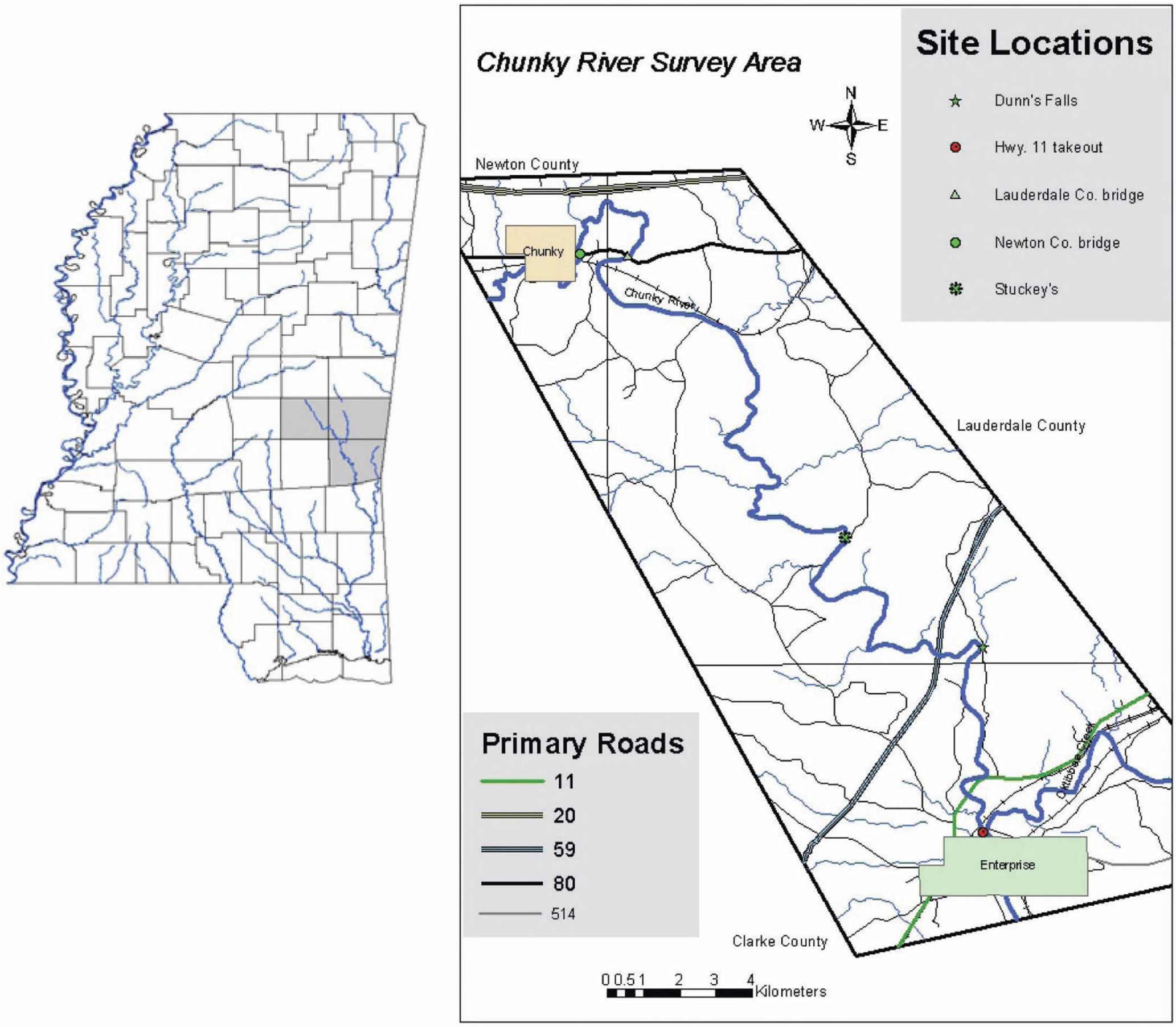

Fig. 1. The tri-county area in which the survey was conducted is shown, extending from the town of Chunky (Newton Co.) to the town of Enterprise (Clarke Co.). Lauderdale County was the most heavily investigated, as the majority of the survey area fell within that county. Areas repeatedly surveyed were between each of the main sites and generally were accessed from these site locations.

flora was not studied. Considering the geological makeup of the area, the wide array of habitats within this system, and the fact that the area had not been studied in detail previously (e.g., only few collections had been made previously by Sydney McDaniel, Ken Rogers, Fanney Cook, Richard Carter, Charles Bryson and a few other botanists), this was an intriguing area in which to perform a floristic study. Recording the flora of this area not only helps conservation efforts but also contributes valuable information and reference material for understanding floral assemblages and plant distributions within this understudied region of Mississippi.

Geography, Geology and Climate

The Chunky River begins at the confluence of Okahatta and Chunky creeks in east-central (Newton County) Mississippi and ends at the formation of the Chickasawhay River by the junction of the Chunky River and Okatibbee Creek in Clarke County, MS. It is situated in the physiographic region known as the North Central Plateau (Lowe 1921, Fenneman 1938) within the upper coastal plain land resource unit (Vanderford 1962).

The Burhstone/Lime Hills is the main ecoregion covering the area studied (Chapman et al. 2004). This

ecoregion is a result of part of the Claiborne group that outcrops in the area (Lowe 1915) known as the Burhstone Cuesta (Fenneman 1938) or Tallahatta Formation and the Enterprise Green Marl (Lowe 1915). Elevations range from 76-201 m. Hard substrates (outcrops and underlying material) consist of Tertiary (Eocene) claystone, siltstone, clay, sandy clay, sandstone, limestone and marl (Lowe 1915; Chapman et al. 2004) which were derived mainly from marine deposits (Lowe 1915).

Soil types along the extent of the survey generally are moderately to excessively well-drained sandy loams and are mildly to very strongly acidic. Most of the soil types within the survey area are low in organic matter (Murphree 1957; Neal et al. 1961; Allgood 1983). The majority of the floodplain soils are of the Bigbee-Bibb soil association, where Bigbee soils are medium to strongly acidic and well drained. Bibb soils are acidic or very strongly acidic and poorly drained. Upland soil associations are of Arundel-Lauderdale, Arundel-Sweatman-Smithdale, Arundel-Smithdale-Williamsville, and Lucy-Smithdale soils, which are all well drained and mildly to strongly acidic. Arundel soils are underlain by stratified sandstone, siltstone, and burhstone. Smithdale and Willliamsville soils are underlain by thick, sandy, marine sediments (Allgood 1983).

Warm summers and cool winters are typical. Thirty year annual averages for temperature and precipitation (from 1971-2000) are 18.2°C and 149 cm/yr, respectively. Maximum and minimum annual average temperatures for this time period are 24.9°C and 11.3°C, respectively (National Weather Service 2007).

The original forest type for this physiographic region consisted of mixed pine and deciduous forests, generally dominated by pine (Lowe 1915). Other than remaining mixed pine and deciduous forests and scrub-shrub forests mainly bordering the river, cutover areas are quite common in many parts of the survey area. These are typically made into loblolly pine plantations except where native vegetation is allowed to grow back naturally.

MATERIALS AND METHODS

Survey Methods

This survey of the Chunky River was performed from March 2004 through early May 2007. The area investigated included sites along roughly 34 km of the Chunky River (32.3264°N, 88.9209°W to 32.1761°N, 88.8198°W) in Newton, Lauderdale and Clarke counties (Fig. 1). Topographic, road, and soil maps of the area were used to choose sites that could be surveyed and re-surveyed over the collection period to account for temporal variation in floral communities. These sites were chosen to account for the heterogeneity of habitats and geology that were observed along the extent of the survey area. The area chosen for study was that extent of the Chunky River that is most heavily used which presumably would suffer the greatest amount of anthropogenic disturbance. Surveying was conducted by canoe in order to search sandbars, rockbars, and river edges and by foot in order to extensively investigate boat ramps, river margins and trails, and roadsides within 50 m of the river at selected sites. About 30 trips were made to the river over the course of this study.

Rare plant populations were heavily studied using guidelines set up by the Mississippi Natural Heritage Program to estimate, from an observational perspective, the plant population health, size, and sustainability. These data were supplied to the Mississippi Natural Heritage Program in order to aid in the conservation of these populations through their tracking and watch list program.

Collections

Currently there is no flora for Mississippi, so collections were identified using various keys for the southeastern United States and other regions which include: Bailey (1949), FNA (1993+), Godfrey & Wooten (1979 & 1981), Hitchcock (1971), Radford et al. (1968), Steyermark (1963), Weakly (2003), and Wunderlin (1998). Questionable specimens were compared with collections at the Mississippi Museum of Natural Science Herbarium (MMNS) and the Mississippi State University Herbarium (MISSA). Species within the Cyperaceae were reviewed by Dr. Charles T. Bryson at the USDA experiment station in Stoneville, MS. Collections made during this survey were vouchered at MMNS in Jackson, MS. Duplicates made during the collection

process were donated to MISSA in Starkville, MS and the Stoneville Research Station Herbarium (SWSL) in Stoneville, MS. Several primary state herbaria; IBE, MISS, MISSA, MMNS, and USMS were reviewed to check for new county records that were potentially found during collection. The *Carex* from SWSL were checked for any new county records within that genus.

A comprehensive list of the plant species found during the survey is provided (Appendix 1). Species names are given along with the collection number, a general habitat description and the frequency in which they were encountered. The plants are listed by class, family, genus, and species. Nomenclature follows The Plants Database (2007) and FNA (1993+), unless otherwise noted. Family names and their respective genera follow the Angiosperm Phylogeny Website (2007). Any relatively recent changes are detailed in the appendix (e.g., Orobanchaceae (Scrophulariaceae, in part)).Author abbreviations follow IPNI (2007).

Rare plants that were found during the survey are supplied with their state ranking given by the Mississippi Natural Heritage Program (2006). Rankings include S1, S2 and S3 for plants on the state tracking list. Higher ranks (S3/S4) are designated for plants only on the state watch list. S-ranks are determined by the abundance and self-maintenance of certain species. The S-1 ranking signifies that the species is under extreme peril in Mississippi through rareness or through some other factor constraining its reproduction or sustained existence. The S-2 ranking is given to denote moderate rarity or some other reproductive or life sustaining, limiting factor. The S-3 ranking means that a species is simply rare or infrequent in the state, and an S-4 ranking means a species is abundant and widespread, but there is reason for future concern relating to this species' continued survival in its present state. An S-5 ranking signifies that the species is relatively common throughout the state and is not apparently threatened in any way (Mississippi's Comprehensive Wildlife Conservation Strategy 2004).

Invasive and/or exotic species collected during the survey are noted in Appendix 1. These are species deemed non-native (exotic) or non-native and invasive by The PLANTS Database (USDA 2007). Regional introductions of plants are not always considered when designating a species as indigenous or non-indigenous to an area; therefore, some species deserving of such a listing might not be represented as introduced (e.g., *Digitaria horizontalis*). Also, native species that are considered to be invasive were not denoted as such in the species list.

RESULTS

Floral Richness

In total 805 taxa, 422 genera, and 140 families were recorded. Families with the highest number of taxa were the Poaceae (120), Asteraceae (83), Cyperaceae (80), and Fabaceae (56). The Poaceae (21) and Fabaceae (13) had the highest number of exotic and/or invasive taxa. The Cyperaceae had the highest number of tracking and watch list taxa recorded for the survey (7). Thriteen new county records were recorded for Clarke County, 272 for Lauderdale County and 56 for Newton County.

Floral Community Heterogeneity

A total of 10 different community types were observed. These are river channel, river bank, floodplain forests, scrub-shrub, xeric openings, sloughs, spring seeps, upland forests, mesic forests, and anthropogenically disturbed areas. Floodplain forests, scrub-shrub, xeric openings, sloughs, spring seeps and some anthropogenically disturbed areas are all within the floodplain. Rocky, mixed uplands and mesic forests fall within the floodplain where the Burhstone Cuesta erupts or grade directly into the river.

The River Channel (RC) community is consistently disturbed by moderate fluctuations in water levels. The most common constituents of this community are the river channel itself, sandbars, rockbars, snags, stumps, and the river margin (where the bank intercepts the river channel), and the most frequently encountered species are ruderal. Most species are annuals such as *Amaranthus spinosus*, *Cleome hassleriana, Cyperus erythrorhizos, C. iria, C. polystachyos, Eragrostis hypnoides, Fimbristylis autumnalis, F. miliacea, Kyllingia pumila, Lindernia dubia, Ludwigia palustris, Oldenlandia boscii, Paspalum boscianum, P. fluitans*, *Physalis pubescens* and *Sesbania herbacea*. Perennial species are either on fairly stable sandbars or along the river margins where the

substrate is less subject to dislodging. Specific examples are *Alternanthera philoxeroides*, *Brunnichia ovata*, *Cyperus esculentus*, *Itea virginica*, *Nyssa aquatica*, *Onoclea sensibilis*, *Osmunda regalis*, *Planera aquatica*, *Polygonum hydropiperoides*, *Rubus trivialis*, *Sesbania punicea*, *Steinchisma hians*, *Taxodium distichum*, *Trachelospermum difforme*, and *Triadenum walteri*.

Podostemon ceratophyllum is a major component of the actual channel where it grows submerged from early fall through early summer. In early fall small plantlets can be found attached to hard submerged substrates. These continue to grow until early summer when plants can be up to 0.5 m or longer and form extensive colonies in fast-flowing water. As the water level falls during the first dry periods of early summer, this species can be found slightly emergent on rocks, logs or any other hard substrate barely above the water level. At this point the plant begins to bloom, fruit, and eventually senesce. The water column in drier years (e.g., 2006) is then invaded by a diverse group of filamentous algae that occupies these areas through the rest of the summer or until water levels increase.

The River Bank (RB) community consists of those intermediate areas between the river channel and the floodplain. The RB community substrate is composed of either sandy, acidic soils, like those of the adjacent floodplains, or of rock outcrops where the Burhstone Cuesta erupts or has been uncovered by the river channel. Most of the RB flora is perennial, but ruderal annuals also are found in these areas frequently disturbed by annual flooding. The most common species in these areas are *Agrostis perennans*, *Alnus serrulata*, *Apios americana*, *Carpinus caroliniana*, *Chasmanthium latifolium*, *Hypericum gallioides*, *Ilex decidua*, *Ipomoea pandurata*, *Mikania scandens*, *Rhododendron canescens*, *Solidago caesia*, *Symphiotrichum lateriflorum* and *Viburnum dentatum*. Along rock outcrops where spring seeps occur, *Selaginella apoda* is found along with other pteridophytes and a very interesting assortment of bryophytes (hornworts, liverworts and mosses).

Floodplain forests (FF) are scattered throughout the extent of the survey area. In many areas they have been decimated by timber harvesting practices, but some relatively large stands of forest still remain. Soils within these areas are generally well drained to sometimes poorly drained, sandy, and acidic with low organic content (Murphree 1957, Neal et al. 1961, Allgood 1983). Typical tree species are *Acer barbatum*, *Carya pallida*, *C. glabra*, *Fagus grandifolia*, *Magnolia grandiflora*, *Ostrya virginiana*, *Pinus glabra*, *Quercus austrina*, *Q. hemisphaerica*, *Q. michauxii*, and *Q. nigra*. Common shrubby species are *Callicarpa americana*, *Ditrysinia fruticosa*, *Halesia carolina*, *Hypericum frondosum*, *Illicium floridanum*, *Lindera benzoin*, *Symplocos tinctoria* and *Vaccinium elliottii*. *Ariasaema dracontium*, *A. triphyllum*, *Carex abscondita*, *C. digitalis*, *Chasmanthium laxum*, *C. sessiliflorum*, *Dichanthelium commutatum*, *D. dichotomum*, *Hexastylis arifolia*, *Mitchella repens*, and *Trillium stamineum* are common herbaceous species within these areas. A species of *Hymenocallis* Salisb. was seen within the floodplain forest; however, it was not collected for the lack of flowering throughout the survey period.

Backwater slough (S) communities permeate the floodplain forests and may be ephemerally wet or inundated throughout the year. Slough wetlands are host to a variety of species not found in faster flowing currents. Species like *Brasenia schreberi*, *Myriophyllum aquaticum*, *M. heterophyllum*, *Nymphaea odorata*, *Potamogeton pulcher* and *Ceratophyllum demersum* occupy the pools. Other wetland species like *Carex joorii*, *C. intumescens*, *C. lurida*, *Iris virginica*, *Leersia oryzoides*, *Peltandra virginica*, *Sabal minor* and *Sparganium americanum* were found along the margins of these sloughs. *Taxodium distichum* and *Nyssa aquatica* occasionally form large cypress/tupelo stands within these backwaters.

The scrub-shrub (SS) communities are between upland ridge and floodplain forest communities. Soils are well-drained, acidic, sandy soils of the Independence loamy fine sand (Murphree 1957) and Bigbee loamy sand (Allgood 1983). Tree and shrub species in these areas typically are those commonly associated with sandy, dry habitats. *Chionanthus virginicus*, *Crataegus uniflora*, *Ilex vomitoria*, *Kalmia latifolia*, *Osmanthus americanus*, *Pinus echinata*, *P. palustris*, *Ptelea trifoliata*, *Quercus hemisphaerica*, *Q. incana*, *Q. margarettiae*, *Vaccinium arboreum*, and *V. stamineum* were frequently seen within these areas. Other common species are *Areolaria flava*, *Asclepias variegata*, *Chasmanthium laxum*, *C. sessiliflorum*, *Dichanthelium aciculare*, *D. scoparium*, *Dioclea multiflora*, *Elephantopus tomentosus*, *Gelsemium sempervirens*, *Lespedeza procumbens*, *Smilax pumila* and *Solidago*

ulmifolia var. *microphylla*. *Vaccinium darrowii* was found in this community type along the river by Dr. Sidney McDaniel in 1970 but was not seen during this survey, although it is quite common in Lauderdale County.

Xeric openings (XO) are found among the SS communities. Openings apparently are created by flooding events, moisture constraints on vegetation produced by copious amounts of sand, anthropogenic disturbances, and by beaver activity. Oftentimes, areas are "cleared" by beavers, which are subsequently repopulated by species adapted for open, xeric, habitats. In summer 2004, one area in particular had been recently cleared by beavers. *Opuntia pusilla* was found in this area but was nearly diminutive from overshading by shrubs. In 2006, when revisiting this site, those same plants were much larger and flowering. *Opuntia pusilla* is frequently found in these areas and therefore typifies these sites, from an observational point of view, as xeric. Many other species are associated with and only with these openings such as *Asclepias humistrata*, *Bulbostylis ciliatifolia* var. *coarctata*, *Callirhoe triangulata, Carex tenax, Cyperus filiculmis, C. lupulinus, C. plukenettii, Digitaria cognata, Froelichia floridana, F. gracilis, Seymeria pectinata, Spiranthes tuberosa, Triplasis americana, T. purpurea,* and *Zornia bracteata*.

Spring seeps (SPS) are the rarest of the communities seen along the survey area. They can be found in deep ravines of some of the larger ridges or along the upper reaches of some of the slough systems. Soils are poorly drained, acidic soils of Bibb (Allgood 1983) or moderately well drained, acidic soils of the Iuka fine sandy loam (Murphree 1957). Typically the herbaceous vegetation is dominated by *Carex leptalea* subsp. *harperi*, *Eleocharis tuberculosa*, *Osmunda cinnamomea, Woodwardia areolata*, *Xyris laxifolia* var. *iridifolia* and other plants typical of acidic seepages. Overstory vegetation generally consists of *Alnus serrulata, Magnolia virginiana, Smilax laurifolia, Toxicodendron vernix*, and *Viburnum nudum*.

Rocky, mixed upland (RU) and mesic, deciduous forests (MF) are found in areas with large outcroppings from the geological uplifts in the area (Burhstone Cuesta). The two communities are segregated by soil moisture, which is apparent by the vegetation. This mainly is a result of aspect, slope and depth of soil relative to harder substrates (rock outcrops), as most of the soils are typically well drained and moderately to highly acidic (Allgood 1983). However, elevated soil pH often is seen where calcareous portions of the Enterprise Green Marl and Tallahatta Formation (consisting of marine shell fragments, etc.) outcrop (Lowe 1915). This provides areas more suitable for plants commonly found in basic soils (e.g., *Heuchera americana, Quercus muehlenbergii*; Radford et al. 1968).

The RU are generally found on southern, western, or southwestern slopes and typically consist of upland tree species such as *Acer barbatum, Magnolia acuminata, M. grandiflora, Pinus echinata, P. palustris, Querucs alba, Q. velutina,* and *Q. muehlenbergii*. Shrubs typical of well drained soils include *Asimina parviflora, Hydrangea quercifolia, Ilex montana*, *Kalmia latifolia, Osmanthus americanus,* and *Viburnum rufidulum*. Herbaceous plants generally are species more typical of well drained soils like *Asclepias variegata*, *Iris cristata*, *Lilium michauxii*, *Pedicularis canadensis, Piptochaetium avenaceum, Pteridium aqulinum,* and *Symphyotrichum cordifolium*.

Mesic, deciduous forests are more typical of the rich, deciduous forests of the Appalachian foothills, although, many of the overstory components were similar to the RU. The MF communities generally are found on northern, eastern, or northeastern slopes. Common tree species are *Acer barbatum, Carya carolinae-septentrionalis, Fagus grandifolia, Magnolia macrophylla, Quercus alba*, *Q. muhlenbergii*, and *Q. pagoda*. Herbaceous species include *Brachyeletrum erectum*, *Carex kraliana, C. striatula, Chamaelirium luteum*, *Desmodium nudiflorum, D. pauciflorum*, *Hepatica nobilis* var. *obtusa*, *Panax quinquefolius, Phegopteris hexagonoptera, Sanguinaria canadensis, Smallanthus uvedalius, Tragia cordata,* and *Trilium stamineum*.

Anthropogenically disturbed areas (ADA) were heavily influenced through human actions. These locations included boat launches, roadsides, bridges, river trails, ditches, cutovers, and any other sites that might have been impacted by human actions. Many non-native, weedy species commonly were seen in such areas.

Tracking and Watch List Species

Nine rare species located on the Mississippi Natural Heritage Program tracking list (2006) were located during this survey. These were *Callirhoe triangulata* (S1/S2), *Carex tenax* (S2), *Clematis glaucophylla* (S1), *Ilex*

montana (S3), *Panax quinquefolius* (S3), *Rhapidophyllum hystrix* (S3), *Rhynchospora globularis* var. *pinetorum* (S1), *Schisandra glabra* (S3), and *Staphylea trifolia* (S3). Also, ten species on the state watch list were found. These include *Carex picta* (S3/S4), *Eleocharis baldwinii* (SNA (P)), *Fuirena pumila* (S3/S4), *Dichanthelium erectifolium* (S3/S4), *Oxalis grandis* (S3/S4), *Panicum brachyanthum* (S3/S4), *Ptelea trifoliata* (S3/S4), *Rhynchospora mixta* (S3/S4), *Rhynchospora scirpoides* (S3/S4) and *Tridens carolinianus*.

Callirhoe triangulata (clustered poppymallow) was found in two different locations within the XO community type. Only five non-reproducing individuals were seen in these small openings within the SS. A more intense investigation of this area for this species could produce larger populations, as this species has been recorded in other areas in Lauderdale County.

Carex tenax (wire sedge) was found in virtually all of the XO communities studied along the extent of the survey area. There never are very large populations of this *Carex*, but it generally is seen to produce large numbers of fruit and apparently thrives in these sandy, xeric sites. *Opuntia pusilla* tends to be a good indicator species for potentially locating this sedge.

Clematis glaucophylla (whiteleaf leather flower) was seen in many locations throughout the survey area. It is found along the floodplain in the ADA, SS, and XO communities. Most of the areas in which it was recorded consisted of a very sandy, well-drained soil that had been previously disturbed by human actions (cutovers, foot traffic, boat ramps) or by flooding along river margins. It generally was associated with scrubby type species of trees and shrubs. Main associates included *Amelanchier arborea, Crataegus uniflora, Ilex decidua*, *I. glabra, Ptelea trifoliata, Quercus hemisphaerica*, *Q. incana, Q. margarettiae*, *Rhododendron canescens*, *Vaccinium arboreum*, *V. stamineum*, and *Viburnum dentatum*. Other common herbaceous constituents included *Carex dasycarpa*, *C. tenax*, *Erythrina herbacea*, *Heterotheca subaxillaris, Opuntia pusilla, Scleria triglomerata, Sporobolus junceus*, *Stillingia sylvatica*, *Tephrosia virginiana*, *Triplasis americana,* and *Zornia bracteata*.

There is a large amount of habitat available for this species' continued existence along river margins, and increased disturbance seems to be a favorable condition for *C. glaucophylla*. Although large numbers of this *Clematis* were not seen in any one location, its distribution seems to be fairly widespread throughout the extent of the main survey area.

Ilex montana (mountain holly) was seen in several RU communities throughout portions of the survey area. It is generally found on the slope just below the tops of ridges, so soils typically are fairly dry. The associate flora is that typical of the RU. Mature male and female plants were seen in flower and fruit, so there is reproduction among the populations of this *Ilex*. Its habitat is relatively stable or free from human disturbance as a result of the topographic nature of the areas.

Panax quinquefolius (American ginseng) was located in two different areas of the survey in mesic forests. Associates included a variety of herbaceous and woody species typical of rich, mesic forests. The small colonies of *Panax* consisted of about 20% mature, reproductive individuals and around 80% mixed immature plants and seedlings. Many plants were seen in the two locations. The populations appear to be self-maintaining and relatively safe from habitat loss because of the rugged topography of the areas in which they are growing. As long as these populations are not overexploited by "ginseng hunters," which is a common practice (Cruise-Sanders & Hamrick 2004), *Panax* will most likely maintain populations at these sites. Although *Panax* was known from Lauderdale County previously, it apparently was not collected, as this collection represents a new county record for the species.

Rhapidophyllum hystrix (blue needle palm) was located along and between backwater sloughs dominated by *Taxodium distichum* (bald cypress) and *Nyssa aquatica* (water tupelo). They always were found inhabiting areas that were slightly elevated from the rest of the floodplain along the slough margins. Soils were of the Quitman loam series which are deep, poorly drained soils found on stream terraces that are strongly to very strongly acidic (Allgood 1983). Generally, plants were growing under a dense canopy provided by mature floodplain forests. The dominant canopy species included *Acer barbatum, Carya glabra, Liguidambar styraciflua, Quercus hemisphaerica* and *Q. michauxii*. The main understory component was *Illicium floridanum*. Other understory dominants included *Lindera benzoin*, *Carpinus caroliniana*, *Ostrya virginiana* and *Symplocos tinctoria*.

Overall, about 90 individuals among 3 populations were seen throughout the area. Several reproductive palms were seen, as well as seedlings and immature individuals growing among the larger plants. Unfortunately, the area containing the highest number of *R. hystrix* has recently been heavily logged. Storm damage from Hurricane Katrina apparently prompted salvage logging at the site. Plants were seen that had been completely devastated by logging trails and machinery. It is uncertain what effects this disturbance will have on the overall population. Although, *R. hystrix* has been reported from Lauderdale County previously (Watson 1972; Clancy & Sullivan 1990), these are the northernmost populations of the palm that have been found in Mississippi and are the largest known populations in the county, as a nearby population along Okatibbee Creek consisted of only four immature individuals (Clancy & Sullivan 1990).

Rhynchospora globularis var. *pinetorum* (globe beaksedge) was found in a cutover within a SS community in moist sandy soils. This variety was rare and was only found in one location along the extent of the survey area. It is a new Lauderdale County record and extends the northern range of this variety in Mississippi.

Schisandra glabra (bay starvine) was found in one location in a MF community along a northeast-facing slope. Some of the vines were rather large, exceeding 30 m in height and 5 cm in diameter. There were about 30 stems of not more than a few plants. Most stems were the product of asexual reproduction, which subsequently formed small colonies. No plants were seen in flower or fruit. Common associate species were *Podophyllum peltatum, Polystichum acrostichoides, Phegopteris hexagonoptera, Maianthemum racemosum, Liriodendron tulipifera, Quercus alba, Ilex opaca, Fagus grandifolia* and *Acer barbatum.*

Human disturbance could eventually play a factor in this species' existence at this site, as nearby trails have been cut along the slope where it grows. Tree-falls have already resulted from those actions. The available habitat for this species directly along the extent of the river surveyed is not very extensive, so this is an important population. Also, this is a new county record for Lauderdale County.

Staphylea trifolia (bladdernut) was found at the base of rich mesic slopes within a FF community. Three large groups of plants were seen, each consisting of about 400-500 clones. None of the plants were reproducing sexually, although numerous plants were produced asexually through root sprouts. Common associate species were *Aesculus pavia, Calycocarpum lyonii, Carex basiantha, Fagus grandifolia, Hexastylis arifolia, Magnolia acuminata, Phegopteris hexagonoptera, Polystichum acrostichoides* and *Sideroxylon lycioides.*

Carex picta and *Oxalis grandis* were found in the RU community type, although, *C. picta* was seen on a more northerly slope that was subsequently more mesic in nature than the site where *O. grandis* was located. The population of *C. picta* consisted of about 100 large clumps, which were growing vigorously. Unfortunately, many of the plants had lost the majority of their floral parts at the time of collection, so it was difficult to determine the quantity of male versus female plants throughout the population. The *O. grandis* population consisted of about 30 individuals scattered over the mid-upper levels of a northwestern slope. The 2 localities where *C. picta* and *O. grandis* were found appear to be relatively stable and free from large-scale human disturbance, because they are close to the river margins along steep slopes. *O. grandis* is a new county record for Lauderdale County.

Ptelea trifoliata and *Tridens carolinianus* were found in the XO communities. Immature, or sterile *P. trifoliata* also was seen in the ADA, FF, MF, RB, RU and SS communities but was only seen reproducing in a few xeric and riverbank openings. The fruit of this species seems to be widely dispersed, but without a sufficient opening in the upper canopy, plants generally do not reproduce. This collection is a new county record for Newton County. *Tridens carolinianus* was seen in one XO community. The small population was made up of about 15 plants. This collection represents a new county record for Lauderdale County and a disjunct population, as the closest location for this species is from Wayne County (MISS) around 50 km south of this location.

Dichanthelium erectifolium, Eleocharis baldwinii, Fuirena pumila and *Rhynchospora scirpoides* were found in the RC community. *Dichanthelium erectifolium* was found infrequently along sandbars in the RC community but also was seen in an area adjacent to a slough system with an open canopy in moist, sandy soils. This is a new county record for Clarke County. It was recorded previously from Lauderdale County (Freckmann

& Lelong 2003a). *Eleocharis baldwinnii* was at one location forming a small colony along the periphery of a sandbar in moist soil. This collection is a new county record for Clarke County and increases the species' known range to the north. The Mississippi Natural Heritage Program designation for this species is SNA (P), which means that this species is reported from the state but not confirmed. However, this species has been collected previously in various parts of the state and is confirmed from the state by Smith et al. (2002). The Mississippi Natural Heritage Program designation for *Eleocharis baldwinnii* can now be reconsidered. *Fuirena pumila* and *R. scirpoides* were seen occasionally or uncommonly along sandbars intermixed with ruderal species of *Cyperus* and other vegetation typical of sandy, moist, disturbed areas. These collections represent new county records for Lauderdale County. Although various collections from Mississippi exist for *F. pumila* (MISS), it is not listed for the state by Kral (2002). The closest record of *R. scirpoides* is from Forrest County, so this collection is disjunct by about 134 km to the northeast.

Panicum brachyanthum was found in one location in an ADA community. Very few individuals were seen along the side of a disturbed, sandy river trail. This habitat seems to be typical for the species (Freckmann & Lelong 2003b). This collection represents a new county record for Lauderdale County.

Rhynchospora mixta was at the base of a moderate slope in a SPS community under a moderate to dense canopy of mixed pine and deciduous forest. A robust population of about 200 plants, in flower and/or fruit, was seen at the time of collection growing closely associated with *Saururus cernuus* and *Lycopus virginiana*. This represents a new county record for Lauderdale County and a disjunct population of around 134 km to the northeast, as the closest collection known is from Forrest County.

Notable collections

Although not on the state's tracking or watch list, *Carex dasycarpa* was found in portions of the FF and SS communities along the extent of the survey area. This represents the first documented specimen of *C. dasycarpa* collected within the state of Mississippi in 112 years. The last specimen of this species recorded in the state was in 1894 by Tracy and Earl found in Jackson County (C.T. Bryson pers. comm.; specimen at MISSA). Therefore, this not only represents new county records for Lauderdale and Newton counties, but it also presents a widely disjunct population, about 320 km, from the previous location. Until seeing these specimens, Charles Bryson had considered delimiting this species as of "historical occurrence" for the state. Further study will be required to determine the extent of these populations and to decide if this species should be placed on the Mississippi Natural Heritage Program tracking or watch list. Ball (2002), states that this species is rare over most of its range, so it is likely to be rare for Mississippi as well.

Digitaria horizontalis is only known from several counties in Mississippi but wasn't previously known from Newton County. Wipff (2003) mentions that this species is tropical in origin and that; it is "probably a recent introduction to the Flora region." This collection is widely disjunct from previous collections. Wipff (2003) illustrates the closest collections in relation to Newton County as being from a north-central county in Mississippi and from southwestern Alabama. One other collection by Tracy (s.n.; 1892) from Horn Island (Jackson Co., MS) was discovered at MISSA while updating the *Panicum* genus.

Exotic/Invasive species

All together, 79 species of exotic plants were found (9.8% of taxa recorded). Fifty-six of these species are ones deemed to be invasive by The Plants Database (2007). The most abundant of these invasive species were *Chenopodium ambrosioides*, *Ligustrum sinense, Lonicera japonica, Microstegium vimineum, Pueraria lobata* and *Triadica sebifera*. *Chenopodium ambrosioides* and *Triadica sebifera* were most common in the RC community with populations generally occurring on shifting sandbars and small "islands." *Chenopodium* was seen throughout the survey area. *Triadica* was mainly seen in two areas. It formed a large colony on one small island above Stuckey's Bridge in Lauderdale County, and another large colony was seen below the Highway 11 Bridge north of Enterprise in Clarke County. Seedlings were seen on sandbars downriver from these larger colonies.

Ligustrum sinense and *Lonicera japonica* were prevalent in portions of the ADA and FF communities.

Lonicera was seen mostly in a low vegetative form where canopy cover was dense, but, in canopy openings more robust, sexually reproductive plants were often found. *Ligustrum* fruited heavily and reproduced vegetatively by means of roots sprouts. Large colonies were found in various parts of the FF communities especially in young forests close to bridges and other previously disturbed areas.

Pueraria lobata was seen in three locations, near Hwy. 11 in Clarke County forming an extensive colony behind a residence, below Stuckey's bridge in Lauderdale County along the river margin adjacent to a camp house, and along a roadside and railroad track near the first boat launch in Newton County. Colonies of this species extended to the river's edge in certain instances. Seedlings were seen on several sandbars disjunct from any parental colonies, so kudzu is definitely moving along the main channel of the river.

Microstegium vimineum was most prevalent in the FF and RC communities. This invasive grass forms a dense groundcover in the floodplain under heavy canopy cover. It also is frequent along the river margins especially in shaded areas (e.g., rockbars where trees overhang the river channel).

The remaining invasive species seen along the survey area were not generally in large numbers except for *Imperata cylindrica*. However, the population of *Imperata* that was found around one of the boat launches in Lauderdale County was sprayed in 2005. Subsequently, no regrowth was seen.

DISCUSSION

Although many botanical collections exist for the state of Mississippi, no all inclusive flora has been completed. Few floristic surveys have been published for the state of Mississippi (Alford 2001; Leidolf et al. 2002) relative to the number of counties (82) and overall area occupied by the state. Floristic surveys of reasonably large areas, such as the Chunky River, add valuable data to the paucity of information for poorly studied regions within the state. These surveys also provide bases for the fulfillment of county-level floras, of which only a few have been completed (e.g., Flint 1882; Ferrari 1970; Morris 1987; Winstead 1990; McDonald 1996; Alford 2001; Leidolf et al. 2002).

The number of county records that were produced exemplifies the lack of collecting in this area. Several of these new county records increase the known distributions for rare species like *Schisandra glabra* and *Rhynchospora globularis* var. *pinetorum*. Other species such as *Carex dasycarpa*, which had not been seen in the state for more that 110 years, can be included in the contemporary flora for the state. Other collections such as *Fuirena pumila,* which is not recorded for the state of Mississippi in the Flora of North America, can be confirmed for the state. Mississippi plant species distributional information is occasionally overlooked in certain treatments within the Flora of North America, although, collections for a given species exist for the state (e.g., Majure 2007). Floristic surveys and herbaria searches can help alleviate this problem. Also, occurrence and distribution data for potentially problematic, invasive, exotic species is gathered through such surveys.

Exotic, invasive species comprised 9.8 % of the flora found on the river. Exotic species are spread easily through highly disturbed areas, and certain species tend to prefer riparian zones for dispersion and resources. River margins and peripheral areas that frequently flood are common places for exotics to become established (Hood & Naiman 1999). It is difficult to say what overall effect the river has on propagule dispersal, but apparently invasive species are being moved around to a degree by annual flooding. There are a large number of invasive species that are common to the sandbars of the Chunky River system.

Anthropogenic disturbance is a continuous threat to this ecosystem. In certain areas, large tracts of forest have been cut within 3-6 meters of the riverbank. This creates potential problems with erosion, and destroys a great deal of habitat for certain species (e.g., blue needle palm). Direct contamination of the river channel is evident especially during the heavily used summer season. Interestingly, some people who use the river for its scenic beauty also contribute to a great deal of waste (e.g., cans, bottles, garbage bags, and tents). Waste also is thrown into the river channel from bridges. More work should be done to insure the natural beauty of this area not be tainted by carefree outdoor enthusiasts.

APPENDIX 1

Plants included in this list were collected by the author and are followed by their specific collection number, unless otherwise noted (e.g., McDaniel 13369). State ranks are given for tracking or watch list species (S1-S4). The frequency at which a given species was observed is noted as common, occasional, uncommon or rare. Community type acronyms follow species frequency. New county records are denoted by **C** for Clarke, **L** for Lauderdale, and **N** for Newton County. Exotic species are denoted by * while exotic, invasive species are denoted by ** before the species name.

FILICOPSIDA

ASPLENIACEAE

Asplenium platyneuron (L.) Britton, Stearns, & Poggenb. (87) common; FF, RU, ADA

BLECHNACEAE

Woodwardia areolata (L.) T. Moore (124) common; SPS
Woodwardia virginica (L.) Sm. (431) occasional; SPS

DENNSTAEDTIACEAE

Pteridium aquilinum (L.) Kuhn (113) common; RU

DRYOPTERIDACEAE

Athyrium filix-femina (L.) Roth (111) common; MF, RB, S, SPS,
Onoclea sensibilis L. (82) common; RC, S, SPS
Polystichum acrostichoides (Michx.) Schott (112) common; MF, RU

LYGODIACEAE

** *Lygodium japonicum* (Thunb.) Sw. (372) rare; ADA, RC

OPHIOGLOSSACEAE

Botrychium dissectum Spreng. (1914) uncommon; FF **N**
Botrychium virginianum (L.) Sw. (1342) common; FF, MF

OSMUNDACEAE

Osmunda cinnamomea L. (109) occasional; SPS
Osmunda regalis L. (110) common; RB, RC, SPS

POLYPODIACEAE

Pleopeltis polypodioides (L.) E.G. Andrews & Windham subsp. *michauxiana* (Weatherby) E.G. Andrews & Windham (265) occasional; RU

THELYPTERIDACEAE

Phegopteris hexagonoptera (Michx.) Fée (96) common; MF
* *Macrothelypteris torresiana* (Gaudich.) Ching (506) rare; FF, RC **L**
Thelypteris kunthii (Desv.) C.V. Morton (661) rare; MF, RC **L**

LYCOPODIOPSIDA

SELAGINELLACEAE

Selaginella apoda (L.) Spring (371) uncommon; RB, RC **L**

PINOPSIDA

CUPRESSACEAE

Juniperus virginiana L. (640) occasional; FF, SS **L**
Taxodium distichum (L.) Rich. (522) common; RB, RC, S **L**

PINACEAE

Pinus echinata Mill. (1191) common; RU, SS
Pinus glabra Walter (259) common; FF, RU, SS
Pinus palustris Mill. (1178) rare; RU, XO **L**
Pinus taeda L. (1198) common; ADA, FF, RB **L**

LILIOPSIDA

AGAVACEAE

Manfreda virginica (L.) Rose (1779) uncommon; RU
Yucca filamentosa L. (92) occasional; FF, SS, XO

ALISMATACEAE

Sagittaria graminea Michx. var. *chapmanii* J.G. Sm. (1505) uncommon; ADA, S **L**
Sagittaria latifolia Willd. (427) occasional; ADA, S, SPS

ALLIACEAE (LILIACEAE, in part)

Allium canadense L. (1414) common; ADA, MF
Nothoscordum bivalve (L.) Britton (1321) common; ADA, RC **N**

AMARYLLIDACEAE (LILIACEAE, in part)

Zephyranthes atamasco (L.) Herb. (1371) uncommon; FF

ARACEAE (including LEMNACEAE)

Arisaema dracontium Schott (148) occasional; MF
Arisaema triphyllum (L.) Schott subsp. *triphyllum* (116) common; FF, MF
Arisaema triphyllum (L.) Schott subsp. *quinatum* (Nutt.) Huttl. (1521) occasional; MF
** *Colocasia esculenta* (L.) Schott (1566) rare; RC **N**
Lemna minor L. (1427) common; S **L**
Spirodela polyrrhiza Schleid. (1428) uncommon; S **L**
Peltandra virginica (L.) Schott (219) occasional; S **L**

ARECACEAE

Rhapidophyllum hystrix (Pursh) H. Wendl. & Drude (89) (**S3**) occasional; FF
Sabal minor (Jacq.) Pers. (523) occasional; FF **L**

BROMELIACEAE

Tillandsia usneoides (L.) L. (2549) rare; RC on *Betula nigra* C

COLCHIACEAE (LILIACEAE, in part)

Uvularia grandiflora Sm. (49) occasional; MF
Uvularia perfoliata L. (203) occasional; MF
Uvularia sessilifolia L. (436) occasional; FF, MF **L**

COMMELINACEAE

Commelina diffusa Burm. f. (557) common; RC **L**
Commelina erecta L. var. *angustifolia* (Michx.) Fernald (1606) uncommon; XO **L**
Commelina virginica L. (554) common; FF, RC, S **L**
Tradescantia virginiana L. (366) common; FF, MF

CYPERACEAE

Bulbostylis ciliatifolia (Ell.) Fernald var. *coarctata* (Ell.) Kral (1192) occasional; XO **L**
Carex abscondita Mack. (1485) occasional; FF, MF
Carex albicans Willd. ex Spreng. var. *australis* (L.H. Bailey) J.H. Rettig (1338) occasional; MF, RU **L**
Carex albolutescens Schwein. (2497) occasional; FF, S **N**
Carex atlantica L.H. Bailey subsp. *capillacea* (L.H. Bailey) Reznicek (127) occasional; MF
Carex aureolensis Steud. (1597) occasional; FF, S **L**
Carex basiantha Steud. (1165) common; FF, MF **L**
Carex bromoides Schkuhr ex Willd. (2499) common; FF, S **N**
Carex caroliniana Schwein. (1372) common; FF **L**
Carex cephalophora Muhl. ex Willd.(202) common; MF, RU **L**
Carex cherokeensis Schwein. (1393) occasional; MF **L**
Carex crebriflora Wieg. (1364) uncommon; FF, MF
Carex dasycarpa Muhl. (1403, 1663) occasional; SS; **L, N**
Carex debilis Michx. (272) common; RC, S, SPS
Carex digitalis Willd. var. *floridana* (L.H. Bailey) Naczi & Bryson (201) common; FF, MF
Carex flaccosperma Dewey (1359) common; ADA, FF
Carex floridana Schwein. (2502) common; FF, MF **N**
Carex gigantea Rudge (364) rare; ADA, S **L**
Carex intumescens Rudge (434) common; S **L**
Carex joorii L.H. Bailey (618) occasional; S, SPS **L**
Carex kraliana Naczi & Bryson (221) common; MF **L**
Carex leptalea Wahlenb. subsp. *harperi* (Fernald) W. Stone (130) rare; SPS
Carex longii Mack. (2496) common; FF, S
Carex louisianica L.H. Bailey (1594) occasional; S **L**
Carex lupulina Muhl. ex Willd. (1595) occasional; S **L**
Carex lurida Wahlenb. (214) common; RC, S
Carex muhlenbergii Schkuhr ex Willd. var. *muhlenbergii* (2503) uncommon; ADA, XO **L**
Carex nigromarginata Schwein. (29, 1337) common; FF, MF, RU **L**, **N**
Carex oxylepis Torr. & Hook. (1365) uncommon; FF **L**
Carex picta Steud. (1373) uncommon; RU (**S3/S4**)
Carex reniformis (L.H. Bailey) Small (2498) occasional; FF, S **N**
Carex socialis Mohlenbr. & Schwegman (1439) rare; MF, RC
Carex striatula Michx. (1384) common; MF
Carex tenax Chapm. ex Dewey (336) occasional; XO (**S2**)
Carex tribuloides Wahlenb. (271) common; FF, S
Carex umbellata Schkuhr ex Willd. (2229) common; FF **L**
Carex vulpinoidea Michx. (2362) occasional; RC
Cyperus compressus L. (1592, 1713) common; RC **L**, **N**
Cyperus croceus Vahl (1196) common; ADA, RC
Cyperus echinatus (L.) Wood (1710) uncommon; RC
Cyperus erythrorhizos Muhl. (2649, 1664) common; ADA, RC **L**, **N**
Cyperus esculentus L. (518) common; ADA, RC **L**
Cyperus filiculmis Vahl (1782) rare; XO **L**
Cyperus haspan L. (1711) common; RC
** *Cyperus iria* L. (1720) common; RC **N**
Cyperus lupulinus (Spreng.) Marcks subsp. *lupulinus* (1767) rare; XO **L**
Cyperus odoratus L. (1783) common; RC
Cyperus plukenetii Fernald (1768) rare; XO
Cyperus polystachyos Rottb. (1721) common; RB, RC **N**
Cyperus pseudovegetus Steud. (329) common; RB, RC, S **L**
Cyperus retrorsus Chapm. (1728) occasional; ADA, XO
** *Cyperus rotundus* L. (1556) rare; ADA
Cyperus strigosus L. (1719) common; RC **N**
Cyperus virens Michx. (1657) occasional; RC, SPS **L**
Eleocharis baldwinii (Torr.) Chapm. (1542) rare; RC; **C SNA (P)**
Eleocharis microcarpa Torr. (1709) uncommon; RC **N**
Eleocharis obtusa (Willd.) Schult. (1570) common; RC
Eleocharis tuberculosa (Michx.) Roem. & Schult. (1495) uncommon; S, SPS **L**
Fimbristylis autumnalis (L.) Roem. & Schult. (1162) common; RC **L**
Fimbristylis decipiens Kral (1712) occasional; RC **N**
Fimbristylis dichotoma (L.) Vahl (1821) uncommon; RC **L**
Fimbristylis miliacea (L.) Vahl (1659) common; RC
Fimbristylis tomentosa Vahl (1808) occasional; RC **L**
Fimbristylis vahlii (Lam.) Link (1565) common; RC **N**
Fuirena pumila (Torr.) Spreng. (2550, 1751) occasional; RC **C**, **L** (**S3/S4**)
Isolepis carinata Hook. & Arn. ex Torr. (1474) uncommon; ADA **L**
Kyllinga brevifolia Rottb. (1390) uncommon; ADA **L**
Kyllinga odorata Vahl (1714) occasional; RC
Kyllinga pumila Michx. (1669) common; RC
Rhynchospora caduca Ell. (1498) occasional; ADA, RC, S
Rhynchospora corniculata (Lam.) A. Gray (549) common; RC, S
Rhynchospora globularis (Chapm.) Small var. *globularis* (1602) occasional; ADA **L**
Rhynchospora globularis (Chapm.) Small var. *pinetorum* (Britton & Small) Gale (340) rare; SS **L** (**S1**)
Rhynchospora glomerata (L.) Vahl (1648) common; S, SPS **L**
Rhynchospora inexpansa (Michx.) Vahl (1647) common; S
Rhynchospora mixta Britton (1494) uncommon; SPS **L** (**S3/S4**)
Rhynchospora scirpoides (Torr.) A. Gray (1809) uncommon; RC **L** (**S3/S4**)
Scirpus cyperinus (L.) Kunth (556) common; RC, S
Scleria oligantha Michx. (220) common; MF, RU **L**
Scleria triglomerata Michx. (1726) uncommon; XO **L**

DIOSCOREACEAE

Dioscorea villosa L. (121) common; MF

ERIOCAULACEAE

Lachnocaulon anceps (Walter) Morong (210) rare; ADA, SPS

IRIDACEAE

Iris cristata W. Aiton (134) occasional; RU **L**
Iris virginica L. (278) occasional; S
Sisyrinchium atlanticum E.P. Bicknell (140) common; MF, RU **L**
Sisyrinchium rosulatum E.P. Bicknell (1387) occasional; ADA **L**

JUNCACEAE

Juncus bufonius L. (1581) common; ADA, RC, S **L**
Juncus coriaceus Mack. (432) common; ADA, S
Juncus dichotomus Ell. (334) occasional; ADA, RC

Juncus diffusissimus Buckley (216) common; ADA, RC, S **L**
Juncus effusus L. (270) common; ADA, S
Juncus elliottii Chapm. (330) occasional; ADA**L**
Juncus marginatus Rostk. (339) occasional; ADA
Juncus repens Michx. (1504) uncommon; RC, S
Juncus scirpoides Lam. (343) occasional; ADA, RC **L**
Juncus tenuis Willd. (337) common; ADA, XO
Juncus validus Coville (342) occasional; ADA, RC
Luzula echinata (Small) F.J. Herm. (30) common; MF, RB, RU

LILIACEAE

Lilium michauxii Poir. (228) occasional; RU **L**

MELANTHIACEAE (LILIACEAE, in part)

Chamaelirium luteum (L.) A. Gray (1382) occasional; MF
Trillium stamineum Harb. (39) occasional; FF, MF, RU

ORCHIDACEAE

Corallorhiza wisteriana Conrad (38) rare; FF **L**
Spiranthes cernua (L.) Rich. (1241) rare; FF **L**
Spiranthes tuberosa Raf. (1762) rare; XO

POACEAE

Agrostis hyemalis (Walter) Britton, Stearns, & Poggenb. (1441) occasional; ADA
Agrostis perennans (Walter) Tuck. (664) common; RB, RC **L**
* *Aira elegans* Willd. ex Kunth (1407) occasional; ADA
Alopecurus carolinianus Walter (1324) occasional; ADA, RC **N**
Andropogon glomeratus (Walter) Britton, Stearns, & Poggenb. var. scabriglumis C.S. Campb. (1907) uncommon; ADA **L**
Andropogon tracyi Nash (1855) uncommon; XO **L**
Andropogon virginicus L. var. *decipiens* C.S. Campb. (1879) common; ADA **L**
Anthaenantia villosa (Michx.) P. Beauv. (1860) uncommon; XO
Aristida dichotoma Michx. var. *curtissii* A. Gray (1188) common; ADA, XO **L**
Aristida lanosa Muhl. ex Elliott (1875) rare; XO
Aristida longispica Poir. var. *geniculata* Fernald (1236) common; ADA, XO **L**
Aristida purpurascens Poir. var. *purpurascens* (1187) common; ADA, XO **L**
Aristida purpurascens Poir. var. *virgata* (Trin.) Allred (1876) common; ADA, XO
Arundinaria gigantea (Walter) Muhl. subsp. *tecta* (Walter) McClure (1340) common; MF, RB, RC **L**
Axonopus fissifolius (Raddi) Kuhlm. (1724) common; ADA **L**
Brachyelytrum erectum (Schreb.) P. Beauv. (548) common; MF
* *Briza minor* L. (1418) occasional; ADA
** *Bromus arvensis* L. (1417) common; ADA
Cenchrus spinifex Cav. (1658) occasional; ADA, XO
Chasmanthium laxum (L.) Yates (1610) common; FF
Chasmanthium latifolium (Michx.) Yates 435) common; FF, RB, RC, S **L**
Chasmanthium sessiliflorum (Poir.) Yates (504) common; FF, MF
** *Cynodon dactylon* (L.) Pers. (1232) common; ADA, RC **L**
Danthonia sericea Nutt. (333) occasional; ADA, SS, XO
Dichanthelium aciculare (Desv. ex Poir.) Gould & C.A. Clark subsp. *aciculare* (2541) common; ADA, SS, XO
Dichanthelium aciculare (Desv. ex Poir.) Gould & C.A. Clark subsp. *angustifolium* (1397) uncommon; ADA, SS, XO
Dichanthelium acuminatum Gould & C.A. Clark subsp. *lindheimeri* (Nash) Freckmann & Lelong (1718) occasional; ADA, RC
Dichanthelium boscii (Poir.) Gould & C.A. Clark (538) common; FF, MF
Dichanthelium clandestinum (L.) Gould (1055) common; FF, RC, S
Dichanthelium commutatum (Schult.) Gould subsp. *joorii* (Vasey) Freckmann & Lelong (1056) common; FF, RC, S
Dichanthelium dichotomum (L.) Gould subsp. *dichotomum* (445) common; FF, RC
Dichanthelium dichotomom (L.) Gould subsp. *microcarpon* (Nash) Freckmann & Lelong (1473) common; ADA, XO
Dichanthelium erectifolium (Nash) Gould & C.A. Clark (2546) rare; RC, S C (**S3/S4**)
Dichanthelium laxiflorum (Lam.) Gould (1338) common; ADA, SS
Dichanthelium oligosanthes (Schult.) Gould subsp. *oligosanthes* (1609) occasional; SS, XO
Dichanthelium ovale (Elliott) Gould & C.A. Clark subsp. *villosissimum* (Nash) Freckmann & Lelong (341) common; XO
Dichanthelium polyanthes (Schult.) Mohlenbr. (1649) common; FF, RB
Dichanthelium ravenelii (Scribn. & Merr.)Gould (1337) occasional; XO
Dichanthelium scoparium (Lam.) Gould (1054) common; ADA, RC, SS
Dichanthelium sphaerocarpon (Ell.) Gould (1465) common; XO
Digitaria bicornis (Lam.) Roem. & Schult. ex Loud. (2536) common; RC **L**
Digitaria cognata (Schult.) Pilg. (1654) occasional; XO
Digitaria filiformis (L.) Koeler var. *filiformis* (1243) occasional; ADA, XO
Digitaria filiformis (L.) Koeler var. *villosa* Fernald (1877) occasional; ADA
* *Digitaria horizontalis* Willd. (1884) uncommon; ADA **N**
** *Digitaria ischaemum* (Schreb.) Muhl. (1830, 1883) common; ADA, RC **L**, **N**
Digitaria sanguinalis (L.) Scop. (1164) common; ADA, RC
* *Digitaria violascens* Link (1242) common; ADA **L**
** *Echinochloa colona* (L.) Link (1579) common; RC
** *Echinochloa crus-galli* (L.) P. Beauv. (1813) common; RC
Echinochloa walteri (Pursh) in A. Heller (625) common; RC **L**
** *Eleusine indica* (L.) Gaertn. (1239) occasional; ADA, RC
Elymus canadensis L. (1885) occasional; ADA, FF **N**
Elymus virginicus L. var. *virginicus* (1488) common; ADA, FF, S **L**
Eragrostis capillaris (L.) Nees (1811) rare; RC **L**
Eragrostis curvula (Schrad.) Nees (1899) rare; ADA **L**
Eragrostis hirsuta (Michx.) Nees (1181) occasional; RB, XO
Eragrostis hypnoides (Lam.) Britton, Stearns, & Poggenb. (1668) common; RC
Eragrostis pectinacea (Michx.) Nees (1588) common; ADA, RC
Eragrostis refracta (Muhl.) Scribn. (511) occasional; ADA, XO

* *Glyceria fluitans* (L.) R. Br. (1336) rare; ADA **L**
Gymnopogon ambiguus (Michx.) Britton, Stearns, & Poggenb. (1757) occasional; XO **L**
Hordeum pusillum Nutt. (1356) common; ADA
** *Imperata cylindrica* (L.) P. Beauv. (347) occasional; ADA **L**
Leersia lenticularis Michx. (663) occasional; FF, S **L**
Leersia oryzoides (L.) Sw. (1246)occasional; RC, S
Leersia virginica Willd. (662) common; FF, RB, RC, S **L**
Leptochloa panicoides (J. Presl.) Hitchc. (2641) rare; RC **L**
** *Lolium temulentum* L. (1416) common; ADA **L**
Melica mutica Walter (40) common; MF
** *Microstegium vimineum* (Trin.) A. Camus (527) common; ADA, FF, RC **L**
Muhlenbergia schreberi J.F. Gmel. (1228) occasional; ADA **L**
Oplismenus hirtellus (L.) P. Beauv. subsp. *setarius* (Lam.) Mez (1822) uncommon; FF **L**
Panicum anceps Michx. (1616) common; ADA, XO
Panicum brachyanthum Steud. (1725) rare; ADA **L** (**S3/S4**)
Panicum dichotomiflorum Michx. subsp. *dichotomiflorum* (1183) common; RC, S **L**
Panicum rigidulum Bosc ex Nees subsp. *rigidulum* (1167) common; RC, S
Panicum verrucosum Muhl. (622) common; ADA, FF, RC, S
Panicum virgatum L. (1177) common; RB, RC **L**
Paspalum boscianum Flueggé (1752) common; RC
** *Paspalum dilatatum* Poir. (1788) common; ADA **L**
Paspalum distichum L. (1170) common; RC
Paspalum fluitans (Ell.) Kunth (2646, 1716) common; RC **L**, **N**
Paspalum laeve Michx. (1615) occasional; ADA, XO
** *Paspalum notatum* Flueggé (1193) common; ADA, FF, RB, RC
Paspalum setaceum Michx. var. *ciliatifolium* (Michx.) Vasey C. Doffitt (s.n.) common; ADA, XO
Paspalum setaceum Michx. var. *longepedunculatum* (LeConte) Alph. Wood (1676) common; ADA, XO, RB
Paspalum setaceum Michx. var. *muehlenbergii* (Nash) D.J. Banks (1911) uncommon; ADA
Paspalum setaceum Michx. var. *stramineum* (Nash) D.J. Banks (1913) occasional; ADA **N**
Paspalum setaceum Michx. var. *villosissimum* (Nash) D.J. Banks (1601) occasional; ADA, XO
** *Paspalum urvillei* Steud. (1573) occasional; ADA, RC
Phanopyrum gymnocarpon (Elliott) Nash (1247) occasional; RC, S **L**
Piptochaetium avenaceum (L.) Parodi (128) occasional; RU **L**
** *Poa annua* L. (1301) common; ADA
Poa autumnalis Muhl. ex Elliott (230) common; RB
Poa chapmaniana Scribn. (1328) common; FF, RU
Saccharum baldwinii Spreng. (1829) common; RB **L**
Saccharum giganteum (Walter) Pers. (648) occasional; ADA, S
** *Schedonorus phoenix* (Scop.) J. Holub (1421) common; ADA
Schizachyrium scoparium (Michx.) Nash var. *scoparium* (1189) common; ADA, XO
Schizachyrium scoparium (Michx.) Nash var. *divergens* (Hack.) Gould (1880) common; ADA
** Secale cereale L. (1673) occasional; ADA **L**
** *Setaria pumila* (Poir.) Roem. & Schult. subsp. *pumila* (1586) occasional; ADA, RC **L**
Sorghastrum elliottii (C. Mohr) Nash (701) occasional; RB, SS, XO **L**
** *Sorghum halepense* (L.) Pers. (1227) common; ADA, RB, RC
Sphenopholis nitida Scribn. (1335) occasional; RU
Sphenopholis obtusata (Michx.) Scribn. (1420) common; ADA
Sporobolus clandestinus (Biehler) Hitchc. (1226) common; XO
Sporobolus junceus (P. Beauv.) Kunth (1185) uncommon; XO
Sporobolus indicus (L.) R. Br. var. *indicus* (1233) occasional; ADA **L**
Steinchisma hians (Ell.) Nash (1463) common; RC, S
Stenotaphrum secundatum (Walter) Kuntze (1194) common; ADA, RB **L**
Tridens carolinianus (Steud.) Henrard (1872) rare; XO **L** (**S3/S4**)
Tridens flavus (L.) Hitchc. var. *flavus* (1195) common; ADA, RB
Triplasis americana P. Beauv. (1186) rare; XO
Triplasis purpurea (Walter) Chapm. (1769) rare; XO **L**
Tripsacum dactyloides (L.) L. (368) occasional; ADA, RB, RC
Urochloa platyphylla (Munro ex C. Wright) R.D. Webster (1169) common; ADA, RC **L**
Vulpia elliotea (Raf.) Fernald (1346) common; ADA **L**
Vulpia octoflora (Walter) Rydb. (331) occasional; ADA

POTAMOGETONACEAE

Potamogeton pulcher Tuck. (1510) common; S **L**
Stuckenia pectinata (L.) Böerner (1506) common; S **L**

RUSCACEAE (LILIACEAE, in part)

Maianthemum racemosum (L.) Link subsp. *racemosum* (95) occasional; MF
Polygonatum biflorum (Walter) Ell. (1392) uncommon; MF

SMILACACEAE

Smilax bona-nox L. (273) common; ADA, FF, RB, RC, SS
Smilax ecirrata (Engelm. ex Kunth) S. Wats. (120) occasional; MF **L**
Smilax glauca Walter (274) common; ADA, FF, RB, RC, SS
Smilax laurifolia L. (1641) rare; SPS
Smilax pumila Walter (115) common; FF, RU, SS
Smilax rotundifolia L. (267) common; ADA, FF, RB, SS
Smilax smallii Morong (360) common; ADA, FF, RB, RC, SS **L**

SPARGANIACEAE

Sparganium americanum Nutt. (1534) common; S **L**

TYPHACEAE

Typha latifolia L. (1560) common; ADA, S C

XYRIDACEAE

Xyris jupicai Rich. (1652) occasional; S, SPS **L**
Xyris laxifolia Mart. var. *iridifolia* (Chapm.) Kral (1642, 2648) uncommon; SPS **L**, **N**
Xyris torta Sm. (455, 456) uncommon; ADA **L**

MAGNOLIOPSIDA

ACANTHACEAE

Justicia ovata (Walter) Lindau (236) common; RC, S **L**

Ruellia caroliniensis (Gmel.) Steud. (417) common; ADA

ADOXACEAE (in part, CAPRIFOLIACEAE)

Sambucus nigra L. subsp. *canadensis* (L.) R. Bolli (1467) common; ADA, FF, RB

Viburnum dentatum L. (473) common; FF, RB, SS **L**

Viburnum nudum L. (1640) rare; SPS **L**

Viburnum rufidulum Raf. (223) occasional; MF, RU **L**

ALTINGIACEAE (in part, HAMAMELIDACEAE)

Liquidambar styraciflua L. (263) common; ADA, FF, RB, RC, S, SS, MF

AMARANTHACEAE

** *Alternanthera philoxeroides* (Mart.) Griseb. (351) common; ADA, RC, S **L**

Amaranthus spinosus L. (1584) occasional; RC **L**

** *Chenopodium ambrosioides* L. (1166) common; RC **L**

Froelichia floridana (Nutt.) Moq. (1244) rare; XO **L**

Froelichia gracilis (Hook.) Moq. (495) rare; ADA, XO **L**

ANACARDIACEAE

Rhus copallinum L. (472) common; ADA, RB, SS, XO

Rhus glabra L. (605) common; ADA, RB

Toxicodendron pubescens Mill. (474) occasional; SS, XO **N**

Toxicodendron radicans (L.) Kuntze (1363) common; ADA, FF, MF, S, SS

Toxicodendron vernix (L.) Kuntze (1662) rare; SPS

ANNONACEAE

Asimina parviflora (Michx.) Dun. (76) common; FF, MF, RU

Asimina triloba (L.) Dun. (222) common; FF, MF **L**

APIACEAE

Chaerophyllum tainturieri Hook. (1314) common; ADA

Cicuta maculata L. var. *maculata* (1486) common; ADA

Eryngium prostratum Nutt. ex DC. (1499) occasional; S

Hydrocotyle ranunculoides L. f. (1804) uncommon; RC **L**

Hydrocotyle verticillata Thunb. var. *verticillata* (1508) occasional; RC, S, SPS **L**

Ptilimnium capillaceum (Michx.) Raf. (1459) common; ADA

Sanicula canadensis L. (537) common; MF

Sanicula odorata (Raf.) K.M. Pryer & L.R. Phillippe (533) occasional; MF **L**

Sanicula smallii Bickn. (251) occasional; MF

Spermolepis echinata (Nutt. ex DC.) Heller (1503) uncommon; ADA **L**

Thaspium trifoliatum A. Gray (197) occasional; MF, RU

Trepocarpus aethusae Nutt. ex DC. (451) common; ADA

APOCYNACEAE (including ASCLEPIADACEAE)

Amsonia tabernaemontana Walter (1888) occasional; FF, MF **N**

Asclepias amplexicaulis Sm. (323) rare; ADA, SS, XO

Asclepias humistrata Walter (1605) uncommon; XO **L**

Asclepias variegata L. (1502) common; FF, SS, XO

Matelea gonocarpos (Walter) Shinners (1460) occasional; ADA, FF, MF **L**

Trachelospermum difforme (Walter) Gray (241) common; ADA, FF, MF, RC, SS

AQUIFOLIACEAE

Ilex decidua Walter (136) common; FF, MF, RB, SS, XO

Ilex glabra (L.) A. Gray (307) rare; FF, RB

Ilex montana Torr. & A. Gray (1383) uncommon; MF, RU **(S3)**

Ilex opaca Aiton (261) common; FF, MF, SS

Ilex vomitoria Aiton (1916) occasional; RB, SS, XO **N**

ARALIACEAE

Aralia spinosa L. (1341) common; ADA, MF, RB

Panax quinquefolius L. (93) rare; MF **L** (**S3**)

ARISTOLOCHIACEAE

Aristolochia serpentaria L. (198) common; FF, MF, SS, XO

Aristolochia tomentosa Sims (498) common; FF, RB

Hexastylis arifolia Small (32) common; FF, MF

ASTERACEAE

Ambrosia artemisiifolia L. (583) common; ADA

Ambrosia trifida L. (1723) common; ADA **N**

Baccharis halimifolia L. (1471) common; ADA

Bidens aristosa (Michx.) Britton (647) common; ADA

Bidens bipinnata L. (1229) common; roadsides, ADA **L**

Bidens frondosa L. (283) occasional; RC

Boltonia caroliniana (Walter) Fernald (635) common; ADA **L**

Carphephorus odoratissimus (J.F. Gmel.) Hebert (1873) rare; ADA, XO

Chrysopsis gossypina (Michx.) Ell. subsp. *hyssopifolia* (Nutt.) Semple (609) uncommon; XO **N**

Chrysopsis mariana (L.) Ell. (643) common; ADA, XO

Cirsium horridulum Michx. var. *horridulum* (1395) uncommon; ADA

Conoclinium coelestinum (L.) DC. (546) common; ADA, FF, S

Conyza canadensis (L.) Cronqist var. *canadensis* (1614) common; ADA

Conyza canadensis (L.) Cronqist var. *pusilla* (Nutt.) Cronq. (1747) common; ADA

Conyza ramosissima Cronqist (1791) common; ADA **L**

Coreopsis lanceolata L. (1399) common; ADA

Coreopsis major Walter (311) common; SS, XO **N**

Coreopsis tripteris L. (1161) occasional; RB, SS, XO **L**

Croptilon divaricatum (Nutt.) Raf. (598) common; ADA, XO

Eclipta prostrata (L.) L. (1600) common; ADA, RC, S

Elephantopus carolinianus Raeusch. (1665) common; FF, RB, SS

Elephantopus tomentosus L. (639) common; ADA, FF, RB, RU, SS

Erechtites hieracifolia (L.) Raf. ex DC. (619) common; ADA, RC

Erigeron annuus (L.) Pers. (286) common; ADA

Erigeron phildelphicus (1313) common; ADA

Erigeron pulchellus Michx. (1532) rare; MF

Eupatorium album L. (600) uncommon; ADA, SS

Eupatorium capillifolium (Lam.) Small ex Porter & Britton (1859) common; ADA

Eupatorium hyssopifolium L. var. *hyssopifolium* (1755) rare; XO

Eupatorium perfoliatum L. (1770) rare; SPS

Eupatorium rotundifolium L. (601) common; ADA, SS

Eupatorium serotinum Michx. (624) common; ADA, RC, S

Eurybia hemispherica (Alexander) G.L. Nesom (644) uncommon; ADA, RU

* *Facelis retusa* (Lam.) Sch. Bip. (1410) common; ADA

Gaillardia aestivalis (Walter) H. Rock (442) common; ADA, RB, XO
Gamochaeta americana (Mill.) Wedd. (1900) uncommon; ADA, RC **C**
Gamochaeta falcata (Lam.) Cabrera (335) common; ADA
Gamochaeta pensylvanica (Willd.) Cabrera (1422) common; ADA **L**
Helenium amarum (Raf.) H. Rock (463) common; ADA
Helenium autumnale L. (1823) uncommon; FF
Helianthus angustifolius L. (626) common; ADA, SPS
Helianthus giganteus L. (447) common; ADA, SS **N**
Helianthus microcephalus Torr. & A. Gray (1793) uncommon; MF, RU
Heterotheca subaxillaris (Lam.) Britton & Rusby (592) common; ADA, XO
Hieracium gronovii L. (541) common; RU, SS, XO
Hypochaeris glabra L. (1350) common; ADA
Ionactis linariifolius (L.) Greene (1607) uncommon; XO **L**
Iva annua L. (1235) common; ADA
Krigia caespitosa (Raf.) Chambers (1330) common; ADA, RC
Krigia virginica (L.) Willd. (1345) common; XO **L**
Lactuca canadensis L. (1564) common; ADA
Lactuca floridana (L.) Gaertn. (367) uncommon; ADA, FF
Liatris squarrosa (L.) Michx. (1763) rare; XO **L**
Melanthera nivea (L.) Small (536) occasional; MF, RU
Mikania scandens (L.) Willd. (205) common; ADA, RC
Packera glabella (Poir) C. Jeffrey (149) rare; FF
Pityopsis graminifolia (Michx.) Nutt. var. *graminifolia* (596) common; SS, XO
Pluchea camphorata (L.) DC. (623) common; ADA, RC, S, SPS
Prenanthes altissima L. (1745) occasional; RU **L**
Pseudognaphalium obtusifolium (L.) Hilliard & B.L. Burtt subsp. *obtusifolium* (599) common; ADA
Pyrrhopappus carolinianus (Walter) DC. (462) common; ADA
Rudbeckia hirta L. (422) common; xeric, sandy areas; ADA, RB, SS
Rudbeckia laciniata L. (1792) rare; FF, RB **L**
Sericocarpus tortifolius (Michx.) Nees (608) occasional; ADA, XO
Silphium asteriscus L. var. *asteriscus* (319, 461) occasional; ADA, XO
Smallanthus uvedalius (L.) Mack. ex Small (244) occasional; MF, RU **L**
Solidago caesia L. (659) common; RB, RU
Solidago discoidea (Elliott) Torr. & A. Gray (542) common; RB, RU, SS, XO
Solidago gigantea Aiton (603) common; ADA
Solidago nemoralis Aiton (602) common; RB **L**
Solidago odora Aiton (627) common; RB, RU, SS, XO
Solidago rugosa Mill. (636) common; RB, RU
Solidago ulmifolia Muhl. ex Willd. var. *microphylla* Gray (590) common; RB, SS, XO **L**
** *Sonchus asper* (L.) Hill (1299) common; ADA
Symphyotrichum cordifolium (L.) G.L. Nesom (1797) occasional; MF, RU **L**
Symphyotrichum lateriflorum (L.) A. Löve & D. Löve var. *lateriflorum* (660) common; ADA, RB
Symphyotrichum patens (Aiton) G.L. Nesom var. *patens* (634) common; RB, RU, SS
Symphyotrichum pilosum (Willd.) G.L. Nesom (1909) common; ADA
Verbesina occidentalis (L.) Walter (1856) rare; FF
Verbesina virginica L. var. *virginica* (1844) rare; SS
Verbesina walteri Shinners (558) occasional; FF, MF **L**
Vernonia gigantea Trel. subsp. gigantea (1667) common; FF
Xanthium strumarium L. (1825) occasional; RC **L**

BALSAMINACEAE
Impatiens capensis Meerb. (2544) common; FF, RC, S C

BERBERIDACEAE
** *Nandina domestica* Thunb. (1666) uncommon; FF **N**
Podophyllum peltatum L. (36) occasional; MF

BETULACEAE
Alnus serrulata (Aiton) Willd. (512) common; RB, RC
Betula nigra L. (235) common; FF, RB, RC, S
Carpinus caroliniana Walter (226) common; FF, RB, RC, S
Ostrya virginiana K. Koch (85) common; FF, MF, RU **L**

BIGNONIACEAE
Bignonia capreolata L. (143) common; RB, RC
Campsis radicans (L.) Seem. (207) common; RB, RC
Catalpa speciosa (Warder) Engelm. (240) common; RB, RC **L**

BORAGINACEAE
* *Heliotropium indicum* L. (376) common; RC
Myosotis macrosperma Engelm. (1366) common; FF **L**

BRASSICACEAE
Cardamine concatenata (Michx.) Sw. (147) uncommon; FF, MF **L**
** *Cardamine hirsuta* L. (1326) common; ADA **N**
Cardamine pensylvanica Muhl. ex Willd. (1362) occasional; RC, S **L**
Lepidium virginicum L. (361) common; ADA
* *Raphanus raphanistrum* L. (281) uncommon; ADA, RC **L**
Rorippa palustris (L.) Besser (208) common; RC **L**
Rorippa sessiliflora (Nutt.) Hitchc. (209) occasional; RC

CABOMBACEAE
Brasenia schreberi J.F. Gmel. (1507) common; S **L**

CACTACEAE
Opuntia pusilla (Haw.) Haw. (309) occasional; ADA, XO **N**

CAMPANULACEAE
Lobelia cardinalis L. (613) common; RC
Lobelia puberula Michx. (631) common; ADA, XO
Lobelia spicata Lam. (1491) rare; ADA
Triodanis perfoliata (L.) Nieuwl. (1354) common; ADA
* *Wahlenbergia marginata* (Thunb.) A. DC. (418) occasional; ADA **L**

CANNABACEAE (ULMACEAE, in part)
Celtis laevigata Willd. (1348) occasional; FF, RB
Celtis tenuifolia Nutt. (288) occasional; RU, SS, XO

CAPRIFOLIACEAE
** *Lonicera japonica* Thunb. (502) common; ADA, FF, RB, SS
Lonicera sempervirens L. (1343) occasional; MF, RU

CARYOPHYLLACEAE
* *Arenaria serpyllifolia* L. (1320) occasional; ADA **N**
* *Cerastium glomeratum* Thuill. (1302) common; ADA
Sagina decumbens Torr. & Gray (1388) occasional; ADA **L**
Silene antirrhina L. (1351) common; ADA
* *Stellaria media* (L.) Vill. (1332) common; ADA

CELASTRACEAE
Euonymus americana L. (441) common; FF, MF

CERATOPHYLLACEAE
Ceratophyllum demersum L. (280) common; S **L**

CISTACEAE
Lechea mucronata Raf. (425) occasional; ADA, XO **L**
Lechea tenuifolia Michx. (326) occasional; ADA, XO **L**

CLEOMACEAE (CAPPARACEAE, in part)
* *Cleome hassleriana* Chod. (375) common; RC **L**

CONVOLVULACEAE
Dichondra carolinensis Michx. (1386) occasional; ADA **L**
Ipomoea cordatotriloba Dennst. var. *cordatotriloba* (420) common; ADA **L**
** *Ipomoea hederacea* Jacq. (1789) common; ADA
Ipomoea lacunosa L. (1816) common; RC **L**
Ipomoea pandurata (L.) G. Mey. (359) common; ADA, FF, RB, RC, SS, XO
Jacquemontia tamnifolia (L.) Griseb. (595) common; ADA
Stylisma humistrata Chapm. (416) common; SS, XO

CORNACEAE
Cornus drummondii C.A. Mey. (378) occasional; FF, RB **L**
Cornus florida L. (250) common; FF, MF, RB

CUCURBITACEAE
* *Cucumis melo* L. var. *reticulatus* Naud. (1557) rare; ADA **N** (nomenclature follows Bailey 1949)
Melothria pendula L. (1598) occasional; ADA, FF, S **L**

EBENACEAE
Diospyros virginiana L. (242) common; ADA, FF, MF, RB, RU, S, SS

ERICACEAE
Gaylussacia dumosa (Andr.) Torr. & Gray (2542) uncommon; SS
Kalmia latifolia L. (150) common; RB, RU
Leucothoe racemosa A. Gray (1918) occasional; RC, S **N**
Lyonia lucida K. Koch (78) rare; RB **L**
Oxydendrum arboreum (L.) DC. (511) occasional; MF, RB, RU
Rhododendron canescens Porter. (77) common; MF, RB, RC, RU
Vaccinium arboreum Marsh. (316) common; RB, SS, XO
Vaccinium darrowii Camp McDaniel (13369) not seen; SS
Vaccinium elliottii Chapm. (276) common; FF, RB, SS
Vaccinium stamineum L. (315) common; RB, SS, XO

EUPHORBIACEAE
Acalypha gracilens A. Gray (466) common; ADA
Acalypha ostryaefolia Riddell (1553) common; ADA **N**
Acalypha rhomboidea Raf. (515-aux.) occasional; ADA, RC
Chamaesyce maculata (L.) Small (586) common; ADA **N**
Chamaesyce prostrata (Aiton) Small (1554) common; ADA, RC **N**
Cnidoscolus stimulosus (Michx.) Engelm. & Gray (322) common; ADA, SS, XO
Croton capitatus Michx. (594) occasional; ADA
Croton glandulosus L. (468) occasional; ADA
Croton willdenowii G.L. Webster (467) occasional; ADA, XO **L**
Ditrysinia fruticosa (W. Bartram) Govaerts & Frodin (204) common; FF, MF, RB, RU, SS, XO
Euphorbia corollata L. (313) common; FF, MF, RB, RU, SS, XO
** *Euphorbia dentata* Michx. (588) uncommon; ADA **L**
Euphorbia pubentissima Michx. (1799) common; MF, RU **L**
Stillingia sylvatica L. (321) occasional; XO **N**
Tragia cordata Michx. (547) rare; MF **L**
Tragia urens L. (325) occasional; ADA, XO **N**
** *Triadica sebifera* (L.) Small (515) occasional; RC **L**

FABACEAE
** *Albizia julibrissin* Durazz. (514) common; RC
Amorpha fruticosa L. (159) common; RB, RC
Amphicarpaea bracteata (L.) Fernald (638) common; ADA, MF
Apios americana Medik. (496) common; RB, RC
Centrosema virginianum (L.) Benth.(327) common; ADA, SS, XO
Cercis canadensis L. (255) occasional; MF, RB
Chamaecrista fasciculata (Michx.) Greene var. *fasciculata* (589) common; ADA
Chamaecrista nictitans Moench subsp. *nictitans* (1746) occasional; ADA, RC
Clitoria mariana L. (443) occasional; ADA, SS, XO
Crotalaria rotundifolia Walter ex J.F. Gmel. (606) rare; ADA, SS, XO **L**
Crotalaria sagittalis L. (458) common; ADA, SS, XO
** *Crotalaria spectabilis* Roth (1898) uncommon; ADA **C**
Desmanthus illinoensis MacMill. (426) rare; ADA
Desmodium glabellum (Michx.) DC. (633) common; ADA, SS **L**
Desmodium nudiflorum (L.) DC. (530) common; MF **L**
Desmodium obtusum DC. (642) common; ADA, SS **L**
Desmodium paniculatum (L.) DC. (1897) uncommon; RC
Desmodium pauciflorum (Nutt.) DC. (532) common; MF
Desmodium strictum (Pursh) DC. (630) common; ADA, SS **L**
Desmodium viridiflorum (L.) DC. (641) common; ADA, SS **L**
Dioclea multiflora C. Mohr (369) common; FF, MF, RB, RU, SS
Erythrina herbacea L. (256) occasional; MF, RB, RU, SS, XO **L**
Galactia volubilis (L.) Britton (545) common; ADA, SS, XO
** *Kummerowia striata* (Thunb.) Schindl. (1679) common; ADA
** *Lespedeza cuneata* G. Don (421) common; ADA
Lespedeza hirta (L.) Hornem. (1894) uncommon; ADA, XO
Lespedeza procumbens Michx. (607) common; ADA, XO
Lespedeza stuevei Nutt. (604) occasional; ADA **L**
Lespedeza violacea (L.) Pers. (1179) uncommon; ADA, XO
Lespedeza virginica (L.) Britton (1756) uncommon; XO
Mimosa microphylla Dryand. (365) occasional; XO
Orbexilum pedunculatum (Mill.) Rydb. var. *psoralioides* (Walter) Isely (1402) uncommon; ADA

Phaseolus polystachios (L.) Britton, Stearn, & Poggenb. var. *polystachios* (1748) uncommon; MF, RU
****Pueraria montana*** (Willd.) Merr. var. *lobata* (Willd.) Maesen & S. Almeida (1563) occasional; ADA, RB **N**
Rhynchosia reniformis DC. (1764) uncommon; XO **L**
Rhynchosia tomentosa (L.) Hook. & Arn. (1794) rare; RU **L**
Robinia pseudoacacia L. (108) common; RB **L**
Senna obtusifolia (L.) H.S. Irwin & Barneby (1678) common; ADA **L**
Sesbania herbacea (Mill.) McVaugh (1677) common; ADA, RC
** *Sesbania punicea* (Cav.) Benth. (379) common; ADA, RC **L**
Sesbania vesicaria Ell. (1895) uncommon; ADA **C**
Strophostyles helvula (L.) Ell. (587) common; ADA, RC
Strophostyles leiosperma (Torr. & A. Gray) Piper (1197) rare; ADA **L**
Stylosanthes biflora (L.) Britton, Stearn, & Poggenb. (430) occasional; ADA, XO
Tephrosia spicata (Walter) Torr. & A. Gray (1240) occasional; ADA, XO
Tephrosia virginiana (L.) Pers. (320) occasional; SS, XO
** *Trifolium arvense* L. (1487) common; ADA **L**
** *Trifolium campestre* Schreb. (1318) common; ADA
** *Trifolium incarnatum* L. (1352) common; ADA
Vicia caroliniana Walter (1391) occasional; MF
* *Vicia grandiflora* Scop. (1311) common; ADA **N**
** *Vicia sativa* L. subsp. nigra (L.) Ehrh. (1310) common; ADA
** *Vicia tetrasperma* (L.) Schreb. (1312) common; ADA **N**
** *Vicia villosa* Roth (1483) occasional; ADA
Wisteria frutescens (L.) Poir. (233) occasional; RB C
Zornia bracteata J.F. Gmel. (529) rare; XO **L**

FAGACEAE
Castanea pumila (L.) Mill. (122) occasional; RU, SS
Fagus grandifolia Ehrh. (262) common; FF, MF, RB, RU
Quercus alba L. (260) common; FF, MF, RU
Quercus austrina Small (508) occasional; FF **L**
Quercus falcata Michx. (440) occasional; RU
Quercus hemisphaerica Bartr. (317) common; FF, RB, SS **L**
Quercus incana Bartr. (314) occasional; SS, XO
Quercus laurifolia Michx. (437); occasional; FF **L**
Quercus lyrata Walter (268) occasional; RC, S
Quercus margaretta Ashe ex Small (470) occasional; SS, XO
Quercus michauxii Nutt. (526) common; FF, MF, RB
Quercus muehlenbergii Engelm. (248) uncommon; MF, RU **L**
Quercus nigra L. (499) common; FF, MF, RB, RU, SS
Quercus pagoda Raf. (1749) occasional; FF, MF, RU **L**
Quercus shumardii Buckley (1750) rare; MF **L**
Quercus stellata Wangenh. (2547) uncommon; RU **L**
Quercus velutina Lam. (539) common; FF, MF, RU

GELSEMIACEAE (LOGANIACEAE, in part)
Gelsemium sempervirens (L.) J. St. Hil. (45) common; ADA, FF, MF, RB, SS

GENTIANACEAE
Sabatia campanulata (L.) Torr. (454) rare; ADA **L**

GERANIACEAE
Geranium carolinianum L. (1315) common; ADA
** *Geranium dissectum* L. (1316) occasional; ADA **N**

HALORAGACEAE
** *Myriophyllum aquaticum* (Vell.) Verdc. (279) common; S **L**
Myriophyllum heterophyllum Michx. (1535) uncommon; S **L**
Proserpinaca palustris L. (1360) common; S **L**

HAMAMELIDACEAE
Hamamelis virginiana L. (118) common; MF, RB

HYDRANGEACEAE
Decumaria barbara L. (83) common; MF, RB
Hydrangea arborescens L. (224) common; MF, RU
Hydrangea quercifolia Bartr. (531) common; RB, RU

HYDROLEACEAE
Hydrolea quadrivalvis Walter (1567) occasional; RC **N**
Hydrolea uniflora Raf. (1575) occasional; RC, S **L**

HYPERICACEAE
Hypericum crux-andreae (L.) Crantz (1781) uncommon; XO
Hypericum drummondii (Grev. & Hook.) Torr. & Gray (1655) common; ADA, XO **L**
Hypericum frondosum Michx. (444) common; FF, RB **L**
Hypericum galioides Lam. (1527) common; RB, RC **L**
Hypericum gentianoides (L.) Britton, Stearn, & Poggenb. (612) common; ADA, XO
Hypericum hypericoides (L.) Crantz (324) occasional; ADA, XO
Hypericum mutilum L. (428) common; ADA
Hypericum setosum L. (1878) rare; XO **L**
Triadenum walteri (J.F. Gmel.) Gleason (1184) common; RC, SPS

ILLICIACEAE
Illicium floridanum Ellis (42) common; FF, MF

ITEACEAE
Itea virginica L. (196) common; FF, RB, RC, S

JUGLANDACEAE
Carya aquatica (Michx. f.) Nutt. (1480) uncommon; FF, RB **L**
Carya carolinae-septentrionalis (Ashe) Engl. & Graebn. (1529) occasional; MF, RU **L**
Carya glabra (P. Mill) Sweet (1180) common; FF, RB
Carya illinoinensis (Wangenh.) K. Koch (501) uncommon; RB **L**
Carya myristiciformis (Michx. f.) Nutt. (1493) occasional; FF **L**
Carya ovalis (Wangenh.) Sarg. (500) common; FF, RB **L**
Carya pallida (Ashe) Engl. & Graebn. (1661) occasional; FF, RU **L**

LAMIACEAE
Blephilia ciliata (L.) Benth. (1526) uncommon; MF
Callicarpa americana L. (247) common; FF, MF, SS
** *Lamium amplexicaule* L. (1300) common; ADA
Lycopus rubellus Moench (1896) rare; RC **C**
Lycopus virginicus L. (1674) common; RC, S
Monarda punctata L. (593) common; ADA, XO
** *Perilla frutescens* (L.) Britton (1869) uncommon; ADA **L**
Prunella vulgaris L. (433) rare; FF
Pycnanthemum albescens Torr. & A. Gray (559) occasional; ADA

Pycnanthemum tenuifolium Schrad. (543) occasional; ADA
Salvia lyrata L. (135) common; ADA, RC
Scutellaria elliptica Muhl. ex Spreng. var. *elliptica* (475) occasional; ADA, SS
Scutellaria integrifolia L. (285) common; ADA, SS
Scutellaria ovata Hill subsp. *ovata* (1795) rare; MF **L**
Teucrium canadense L. (521) occasional; FF, S **L**
Trichostema dichotomum L. (629) common; ADA, XO
Trichostema setaceum Houtt. (1861) rare; XO

LAURACEAE
Lindera benzoin (L.) Blume (43) common; FF, MF **L**
Sassafras albidum (Nutt.) Nees (346) common; FF, MF, SS

LENTIBULARIACEAE
Utricularia gibba L. (1852) occasional; S **L**

LINACEAE
Linum medium (Planch.) Britton var. *texanum* (Planch.) Fern. (382) common; ADA **L**
Linum striatum Walt. (429) common; ADA

LINDERNIACEAE (SCROPHULARIACEAE, in part)
Lindernia dubia (L.) Pennell var. *dubia* (373) common; ADA, RC
Lindernia dubia (L.) Pennell var. *anagallidea* (Michx.) Cooperrider (1558) common; ADA, RC

LOGANIACEAE
Mitreola petiolata (J.F. Gmel.) Torr. & A. Gray (544) occasional; ADA, RC
Spigelia marilandica (L.) L. (243) common; MF

LYTHRACEAE
Ammannia coccinea Rottb. (1717) common; RC
Ammannia latifolia L. (1582) occasional; RC **L**
* *Cuphea carthagenensis* (Jacq.) J.F. Macbr. (519) common; RC **L**
Rotala ramosior (L.) Koehne (525) common; RC, S

MAGNOLIACEAE
Liriodendron tulipifera L. (252) common; FF, MF
Magnolia acuminata (L.) L. (119) occasional; MF, RU
Magnolia grandiflora L. (266) common; FF, MF, RU
Magnolia macrophylla Michx. (227) occasional; FF, MF, RU
Magnolia virginiana L. (438) occasional; S, SPS

MALVACEAE
Callirhoe triangulata (Leavenw.) A. Gray (1760) rare; XO (**S1/S2**)
Hibiscus moscheutos L. (1552) occasional; ADA, S
Sida rhombifolia L. (446) common; ADA, RC **L**
Sida spinosa L. (621) common; ADA, RC **L**

MELASTOMATACEAE
Rhexia mariana L. var. *mariana* (362) common; ADA, RC **L**
Rhexia virginica L. (2539) occasional; RC, S **L**

MELIACEAE
** Melia azedarach L. (1357) occasional; RB **L**

MENISPERMACEAE
Calycocarpum lyonii (Pursh) A. Gray. (497) common; FF, MF
Cocculus carolinus (L.) DC. (234) common; FF, MF, SS **L**

MOLLUGINACEAE
Mollugo verticillata L. (516) common; ADA, RC

MONOTROPACEAE
Monotropa uniflora L. (1501) uncommon; SS, XO **L**

MORACEAE
Morus rubra L. (258) common; FF, MF

MYRICACEAE
Morella cerifera (L.) Small (584) common; RB, RC, SPS

NYMPHAEACEAE
Nymphaea odorata Aiton (1509) common; S

NYSSACEAE
Nyssa aquatica L. (231) common; RC, S
Nyssa biflora Walter (510) common; RC, S **L**
Nyssa sylvatica Marsh. (1404) common; MF, RU, SS

OLEACEAE
Chionanthus virginicus L. (138) occasional; RB, RU, SS
Fraxinus americana L. (439, 1889) common; FF, MF, RB **L**, **N**
Fraxinus pennsylvanica Marsh. (232) common; FF, RB
** *Ligustrum sinense* Lour. (503) common; ADA, FF, RB, SS
Osmanthus americanus (L.) Benth. & Hook.f. ex Gray (81) common; RU, SS

ONAGRACEAE
Gaura filipes Spach (591) rare; ADA, XO
Ludwigia alternifolia L. (552) common; RC, S, SPS
Ludwigia decurrens Walt. (1864) common; RC, S
Ludwigia glandulosa Walt. (553) common; RC, S
Ludwigia leptocarpa (Nutt.) Hara (1753) common; RC, S
Ludwigia linearis Walt. (1772) uncommon; RC
Ludwigia palustris (L.) Ell. (277) common; RC, S
Ludwigia peploides (Kunth) Raven (1805) uncommon; RC
Oenothera biennis L. (585) common; ADA
Oenothera laciniata Hill (349) common; ADA
Oenothera speciosa Nutt. (1400) common; ADA

OROBANCHACEAE (SCROPHULARIACEAE, in part)
Agalinis obtusifolia Raf. (1908) uncommon; ADA, XO **L**
Agalinis setacea (J.F. Gmel.) Raf. (632) occasional; ADA, XO **L**
Aureolaria flava (L.) Farw. (628) common; RU, SS, XO
Epifagus virginiana (L.) W.P.C. Barton (665) common; MF
Pedicularis canadensis L. (94) occasional; RU
Seymeria pectinata Pursh (597) common, XO

OXALIDACEAE
Oxalis dillenii Jacq. (1368) common; ADA **N**
Oxalis grandis Small (1334) uncommon; RU **L**
Oxalis priceae Small subsp. colorea (1333) rare; RU
Oxalis stricta L. (328) common; ADA, RC
Oxalis violacea L. (125) common; RU

PAPAVERACEAE
Sanguinaria canadensis L. (37) occasional; MF

PASSIFLORACEAE
Passiflora incarnata L. (1528) uncommon; ADA
Passiflora lutea L. (137) common; RB, RC, SS

PENTHORACEAE
Penthorum sedoides L. (2545) common; FF, RC, S C

PHRYMACEAE (SCROPHULARIACEAE, in part)
Mimulus alatus Aiton (551) common; RC, S **L**
Phryma leptostachya L. (534) occasional; MF **L**

PHYLLANTHACEAE (EUPHORBIACEAE, in part)
Phyllanthus caroliniensis Walter (370) occasional; ADA, RC **L**
** *Phyllanthus urinaria* L. (1230) occasional; ADA, RC **L**

PHYTOLLACACEAE
Phytolacca americana L. (1234) occasional; ADA, RB, RC

PLANTAGINACEAE (SCROPHULARIACEAE, in part)
Gratiola neglecta Torr. (1477) occasional; ADA, RC, S **L**
Gratiola pilosa Michx. (464) occasional; ADA
Gratiola virginiana L. (1339) occasional; RC, S **L**
Mecardonia acuminata (Walter) Small (610) occasional; ADA, RC
Micranthemum umbrosum (J.F. Gmel.) Blake (1589) occasional; RC, S
Nuttallanthus canadensis (L.) D.A. Sutton (1327) occasional; ADA, RC
Plantago aristata Michx. (345) common; ADA
** *Plantago lanceolata* L. (424) common; ADA
Plantago rugelii Decne. (452) common; ADA **L**
Plantago virginica L. (1409) common; ADA
** *Veronica arvensis* L. (1319) common; ADA **N**
Veronica peregrina L. (1329) occasional; RC **N**

PLANTANACEAE
Platanus occidentalis L. (44) common; RB, RC **L**

PODOSTEMACEAE
Podostemum ceratophyllum Michx. (1458) common; RC **N**

POLEMONIACEAE
Phlox pilosa L. subsp. *pilosa* (114) common; MF

POLYGALACEAE
Polygala cruciata L. (457) occasional; ADA, SPS **L**
Polygala grandiflora Walter (350) common; ADA, XO
Polygala incarnata L. (1482) rare; ADA
Polygala mariana Mill. (1672) rare; ADA
Polygala nana (Michx.) DC. (194) common; ADA, SS, XO

POLYGONACEAE
Brunnichia ovata (Walt.) Shinners (210) common; RB, RC **L**
Polygonum caespitosum Blume var. *longisetum* (Bruijn) Steward (1479) common; RC **L**
Polygonum glabrum Willd. (1812) occasional; RC **L**
Polygonum hydropiperoides Michx. (1464) common; RC, S
Polygonum pensylvanicum L. (620) common; RC, S
Polygonum virginianum L. (1824) uncommon; FF
** *Rumex crispus* L. (282) rare; RC
Rumex hastatulus Baldwin (318) common; ADA, XO

PORTULACACEAE
Claytonia virginica L. (91) common; FF **L**
** *Portulaca oleracea* L. (1585) uncommon; RC **L**

RANUNCULACEAE
Clematis glaucophylla Small (367) occasional; ADA, SS, XO (**S1**)
Clematis virginiana L. (1497, 1847) occasional; ADA, RB, RC **L**, **N**
Hepatica nobilis Schreb. var. *obtusa* (Pursh) (139) occasional; MF, RU
Ranunculus abortivus L. (1331) uncommon; RC **N**
Ranunculus bulbosus L. (377) rare; RC
Ranunculus pusillus Poir. (1361) rare; RC
Ranunculus recurvatus Poir. (1531) rare; MF
** *Ranunculus sardous* Crantz (1476) occasional; ADA, RC
Thalictrum thalictroides (L.) A.J. Eames & B. Boiv. (50) common; MF
Xanthorhiza simplicissima Marsh. (80) occasional; RB

RHAMNACEAE
Berchemia scandens (Hill) K. Koch (507) common; FF, MF, RB
Frangula caroliniana (Walter) A. Gray (245) occasional; MF

ROSACEAE
Agrimonia microcarpa Wallr. (646) uncommon; ADA, RU
Amelanchier arborea (Michx. f.) Fernald (117, 513) common; RB, RU, SS
Crataegus marshallii Eggl. (79) occasional; RB **L**
Crataegus uniflora Münchh. (287) common; SS **L**
* *Duchesnea indica* (Andrews) Focke (1322) occasional; ADA
Photinia pyrifolia (Lam.) K.R. Robertson & J.B. Phipps (614) common; SS
Potentilla simplex Michx. (1429) common; ADA
Prunus angustifolia Marsh. (1405) uncommon; SS, XO **L**
Prunus caroliniana (Mill.) Aiton (46) common; RB **L**
Prunus serotina Ehrh. (344) common; MF, RB, SS
Prunus umbellata Ell. (90) occasional; RB, SS
Pyrus calleryana Decne. (2548) uncommon; RB **C**
Rosa carolina L. (1415) common; RB, SS
** *Rosa multiflora* Thunb. ex Murray (146) occasional; RB **L**
Rubus argutus Link (1440) common; RB, RC
Rubus flagellaris Willd. (332) common; ADA, RC **L**
Rubus trivialis Michx (47) common; ADA, RC **L**

RUBIACEAE
Cephalanthus occidentalis L. (509) common; RC, S
Diodia teres Walter (449) common; ADA **N**
Diodia virginiana L. (284) common; ADA, RC
Galium aparine L. (1353) common; ADA
Galium circaezans Michx. (253) common; MF
Galium pilosum Aiton (423) occasional; ADA, XO **L**
Galium tinctorium (L.) Scop. (1599) occasional; S **L**
Galium uniflorum Michx. (200) common; MF, RU, SS
Houstonia purpurea L. (229) common; RB
Houstonia pusilla Schöpf (1325) common; ADA **N**
Mitchella repens L. (195) common; FF, MF
Oldenlandia boscii (DC.) Chapm. (465) common; ADA, RC
Oldenlandia uniflora L. (1758) common; RC **L**
Richardia scabra L. (517) common; RC
* *Sherardia arvensis* L. (1411) common; ADA **L**

RUTACEAE
Ptelea trifoliata L. (144) occasional; FF, MF, RB, RU, SS, XO **N** (**S3/S4**)

SALICACEAE
Populus deltoides Bartram ex Marshall (471) uncommon; ADA, RB **L**
Salix nigra Marsh. (213) common; RC, S

SANTALACEAE
Phoradendron leucarpum (Raf.) Reveal & M.C. Johnst. (550) occasional; FF parasitic on *Acer barbatum* **L**

SAPINDACEAE (including HIPPOCASTANACEAE)
Acer barbatum Michx. (86) common; FF, MF
Acer negundo L. (48) common; FF, RB, RC
Acer rubrum L. (249) common; FF, MF, S
Aesculus pavia L. (26) common; FF, MF, RB

SAPOTACEAE
Sideroxylon lycioides L. (225) occasional; FF, MF

SAURURACEAE
Saururus cernuus L. (275) common; S

SAXIFRAGACEAE
Heuchera americana L. (1490) rare; RU **L**

SOLANACEAE
Solanum americanum Mill. (1475) uncommon; ADA, RC
Solanum carolinense L. (211) common; RC
Physalis angulata L. (1807) uncommon; RC **L**
Physalis pubescens L. var. *pubescens* (1583) uncommon; RC
Physalis virginiana Mill. (1530) uncommon; MF **L**

STAPHYLEACEAE
Staphylea trifolia L. (1525) uncommon; FF, MF (**S3**)

STYRACACEAE
Halesia carolina L. (84) common; FF, RB
Styrax americanus Lam. (246) occasional; FF, MF, S **L**
Styrax grandifolius Aiton (1492) uncommon; RU

SYMPLOCACEAE
Symplocos tinctoria (L.) L'Hér. (88) common; FF, MF, RB

TETRACHONDRACEAE (BUDDLEJACEAE, in part)
Polypremum procumbens L. (450) common; ADA, RC

ULMACEAE
Planera aquatica J.F. Gmel. (145) occasional; RC, S **L**
Ulmus alata Michx. (469) common; FF, MF, RB, SS
Ulmus americana L. (528) occasional; FF, RB
Ulmus rubra Muhl. (1394) common; FF, MF, RU **L**

URTICACEAE
Boehmeria cylindrica (L.) Sw. (505) common; RC, S
Pilea pumila (L.) A. Gray (524) occasional; RC, S **L**
Urtica chamaedryoides Pursh (1461) uncommon; ADA, FF **L**

VALERIANELLACEAE
Valerianella radiata (L.) Dufr. (1317) common; ADA **N**

VERBENACEAE
* *Verbena brasiliensis* Vell. (363) common; ADA
Verbena halei Small (419) common; ADA
* *Verbena rigida* Spreng. (1231) occasional; ADA

VIOLACEAE
Viola affinis LeConte (27, 31) common; FF, RB, RC **N**
Viola ×*primulifolia* L. (pro sp.) [*lanceolata* × *macloskeyi*] (33) common; RB, RC
Viola sororia Willd. (35) uncommon; MF **L**
Viola walteri House (28) common; MF, RU

VITACEAE
Ampelopsis arborea (L.) Koehne (206) common; RB, RC **L**
Parthenocissus quinquefolia (L.) Planch. (257) common; FF, MF, RB, RU
Vitis cinerea (Engelm.) Millardet (1457) common; RB **L**
Vitis palmata Vahl (1462) common; FF, RB **L**
Vitis rotundifolia Michx. (254) common; FF, MF, RB, SS, XO

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REFERENCES

Alford, M.H. 2001. The vascular flora of Amite County, Mississippi. Sida 19:645-699.

Allgood, V.C. 1983. Soil survey of Lauderdale County, Mississippi. United States Department of Agriculture, Soil Conservation Service, Washington, D.C.

Anonymous. 1981. State gets newest natural area. Mississippi Outdoors. P. 11

Assessment Criteria for Mississippi's Scenic Streams Stewardship Program. 2002. Public Notice No. 3661, Mississippi Department of Wildlife, Fisheries and Parks, Jackson.

Bailey, L.H. 1949. Manual of the cultivated plants. McMillan Publishing Company, New York.

Ball, P.W. 2002. *Carex* (sect. Hallerianae). In: Flora of North America Editorial Committee, eds. 1993+. Flora of North America North of Mexico. 12+ vols. New York and Oxford. Vol. 23, pp.487-489.

Brieger, J.F. 1997. Hometown Mississippi. Town Square Books, Inc. Jackson.

Chapman, S.S., G.E. Griffith, J.M. Omernik, J.A. Comstock, M.C. Beiser, and D. Johnson. 2004. Ecoregions of Mississippi. (color poster with map, descriptive text, summary tables and photographs): Reston, VA, U.S Geological Survey (map scale 1:1,000,000).

Clancy, K.E. and M.J. Sullivan. 1990. Distribution of the Needle Palm, *Rhapidophyllum hystrix*. Castanea 55:31-39.

Cruise-Sanders, J.M. and J.L. Hamrick. 2004. Genetic Diversity in Harvested and Protected Populations of Wild American Ginseng, *Panax quinquefolius* L. (Araliaceae). Amer. J. Bot. 91:540-548.

Fenneman, N.M. 1938. Physiography of eastern United States. McGraw-Hill Book Company, Inc. New York.

Ferrari, R.V. 1970. A survey of the vascular flora of DeSoto County, Mississippi. M.S. Thesis, Memphis State Univ., Memphis.

Flint, M.B. 1882. The exogenous flora of Lincoln Co., Mississippi, from October to May. Bot. Gaz. 7:74-76, 79-81.

Flora of North America Editorial Committee, eds. 1993+. Flora of North America North of Mexico. 12+ vols. New York and Oxford.

Freckmann, R.W. and M.G. Lelong. 2003a. *Dichanthelium*. In: Flora of North America Editorial Committee, eds. 1993+. Flora of North America North of Mexico. 12+ vols. New York and Oxford. Vol. 25, pp. 406-451.

Freckmann, R.W. and M.G. Lelong. 2003b. *Panicum*. In: Flora of North America Editorial Committee, eds. 1993+. Flora of North America North of Mexico. 12+ vols. New York and Oxford. Vol. 25, pp.450-488.

Godfrey, R.K. and J.W. Wooten. 1979. Aquatic and wetland plants of southeastern United States; Monocotyledons. University of Georgia Press, Athens.

Godfrey, R.K. and J.W. Wooten. 1981. Aquatic and wetland plants of southeastern United States; Dicotyledons. University of Georgia Press, Athens.

Historic Bridges of the United States. 2002-2006. (http://bridgehunter.com/)

Hitchcock, A.S. 1971. Manual of the grasses of the United States. Vols. 1 & 2. Dover Publications, Inc. New York.

Hood, W.G. and R.J. Naiman. 1999. Vulnerability of riparian zones to invasion by exotic vascular plants. Plant Ecology 148:105-114.

Kral, R. 2002. *Fuirena*. In: Flora of North America Editorial Committee, eds. 1993+. Flora of North America North of Mexico. 12+ vols. New York and Oxford. Vol. 23, pp. 32-37.

Leidolf, A., S. McDaniel, and T. Nuttle. 2002. The flora of Oktibbeha County, Mississippi. Sida 20:691-765.

Lowe, E.N. 1915. Mississippi, Its Geology, Geography, Soils and Mineral Resources. Mississippi State Geological Survey. Bulletin (12). Tucker Printing House, Jackson.

Lowe, E.N. 1921. Plants of Mississippi: A list of flowering plants and ferns. Mississippi State Geological Survey, Bulletin (17). Jackson.

MacDonald, J.R. 1996. A survey of the flora of Monroe County, Mississippi. M.S. Thesis, Mississippi State Univ., Mississippi State.

Majure, L.C. 2007. Noteworthy collections: Mississippi. Castanea 72:121-122.

McGahey, S., Dockery III, D.T., and S. Ingram. 1992. Indian Artifacts of Tallahatta Quartzite From Tallahatta Creek Site 22-LD-645, East Central Mississippi. Mississippi Geology 13:37-43.

Mississippi's Comprehensive Wildlife Conservation Strategy. 2004. Criteria for Selection of Species of Greatest Conservation Need. Mississippi Department. of Wildlife, Fisheries and Parks, Jackson.

Mississippi Department of Environmental Quality. 2001. Pascagoula River Basin Status Report. Mississippi Department of Environmental Quality, Jackson.

Mississippi Natural Heritage Program. 2002. Dunns Falls. Site Basic Record. Mississippi Museum of Natural Science, Mississippi Department of Wildlife, Fisheries and Parks, Jackson.

Mississippi Natural Heritage Program. 2006. Special Plants Tracking List. Mississippi Museum of Natural Science, Mississippi Department of Wildlife, Fisheries and Parks, Jackson.

Mississippi State Legislature. 2002. House Bill 952, Jackson.

Morris, M.W. 1987. The vascular flora of Grenada County, Mississippi. M.S. Thesis, Mississippi State Univ., Mississippi State.

Murphree, L.C. 1957. Soil Survey: Newton County, Mississippi. United States Department of Agriculture, Soil Conservation Service, Washington, D.C.

National Weather Service (NWS). 2007. (http://www.srh.noaa.gov/)

Neal, H.L., B.G. Moss, C.H. Whittington, J.W. Keyes, W.W. Nye, and C.H. Freeman. 1961. Soil Survey: Clarke County, Mississippi. United States Department of Agriculture, Soil Conservation Service, Washington, D.C.

Pat Harrison Waterway District. 2002. Dunn's Falls. (www.phwd.net.)

Radford, A.E., H.E. Ahles, and C.R. Bell. 1968. Manual of the vascular flora of the Carolinas. The University of North Carolina Press, Chapel Hill.

Smith, S.G., J.J. Bruhl, M.S. Gonzalez-Elizondo, and F.J. Menapace. 2002. *Eleocharis*. In: Flora of North America Editorial Committee, eds. 1993+. Flora of North America North of Mexico. 12+ vols. New York and Oxford. Vol. 23, pp. 60-120.

Stevens, P.F. (2001 onwards). Angiosperm Phylogeny Website. Version 8, June 2007. http://www.mobot.org/MOBOT/research/APweb/.

Steyermark, J.A. 1963. Steyermark's flora of Missouri. Missouri Dept. of Conservation in cooperation with Missouri Botanical Garden Press, Jefferson City.

The International Plant Names Index (IPNI). 2007. Published on the Internet http://www.ipni.org [accessed 20 September 2007].

USDA, NRCS. 2007. The PLANTS Database (http://plants.usda.gov, 20 September 2007). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

Vanderford, H.B. 1962. Soils of Mississippi. Mississippi Agric. Exp. Sta., Mississippi State.

Watson, R. 1972. *Rhapidophyllum hystrix* in Mississippi. Rhodora 74:525.

Weakly, A.S. 2003. Flora of the Carolinas and Virginia: Dicotyledons. Working draft of July 2003. University of North Carolina at Chapel Hill, NC.

Winstead, R. 1990. A taxonomic and ecological survey of the plant communities of Attala County, Mississippi. M.S. Thesis, Mississippi State Univ., Mississippi State.

Wunderlin, R.P. 1998. Guide to the vascular plants of Florida. University Press of Florida, Gainesville.